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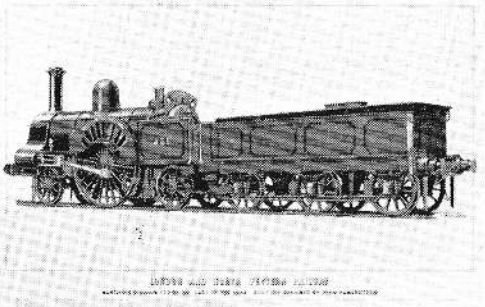

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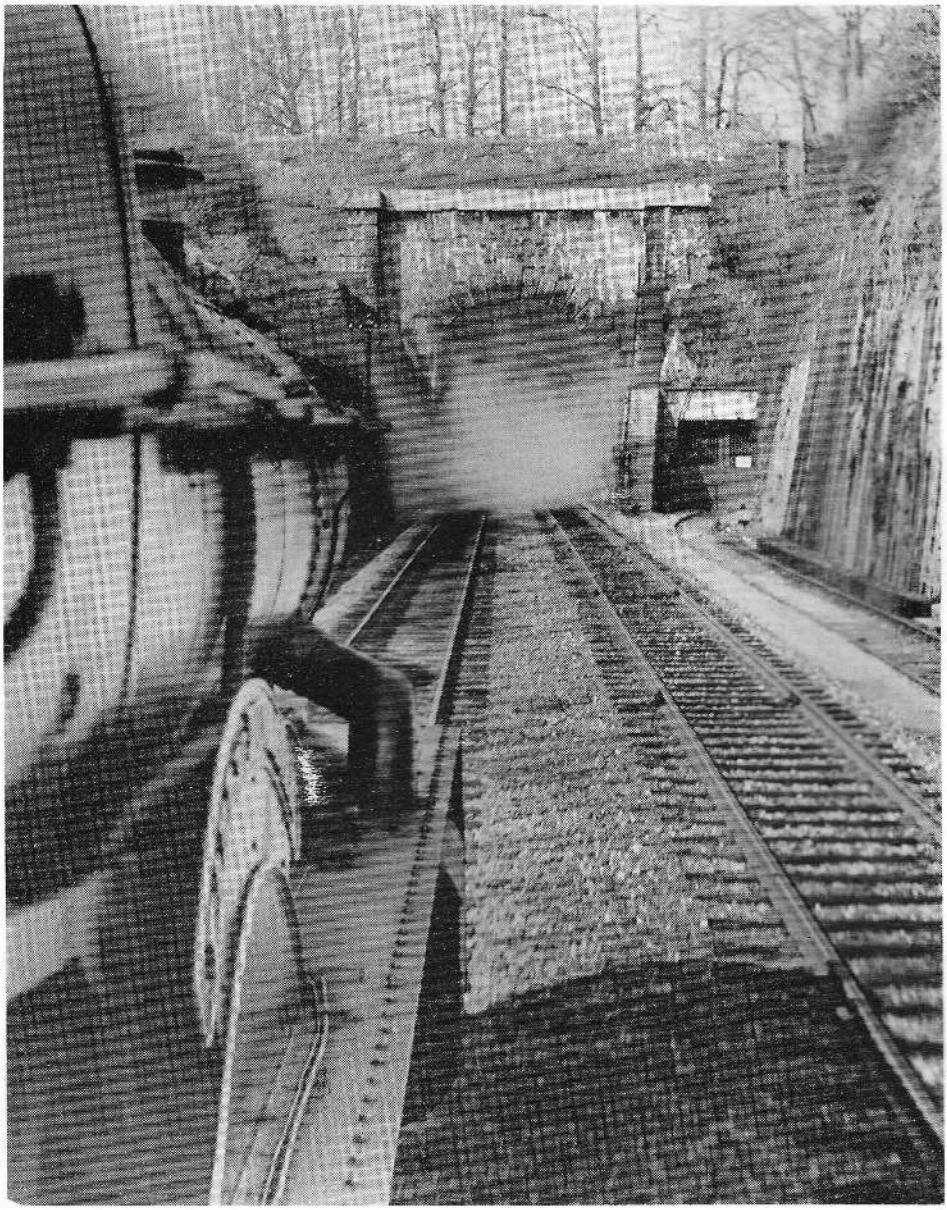

Drivers eye view

From the cab of a Great Western Castle careering at high speed up to the eastern portal of Box Tunnel the driver leans out to get a good view before ducking through the pall of smoke hanging round the entrance from the previous hardworking up train. The little tunnel at the right with doors is a private siding to the underground stone quarries of Box.
[P. B. Whitehouse

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AUTUMN 1968 IAN ALLAN

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FRONT COVER

Charles Collett's 4-6-0 Locomotive PENDENNIS CASTLE, depicted here by Victor Welch, figured in the exchanges with the LNER Pacific class in 1925 and is now privately preserved on the Dart Valley Railway.

EDITOR
Charles F. Klapper, MInstT

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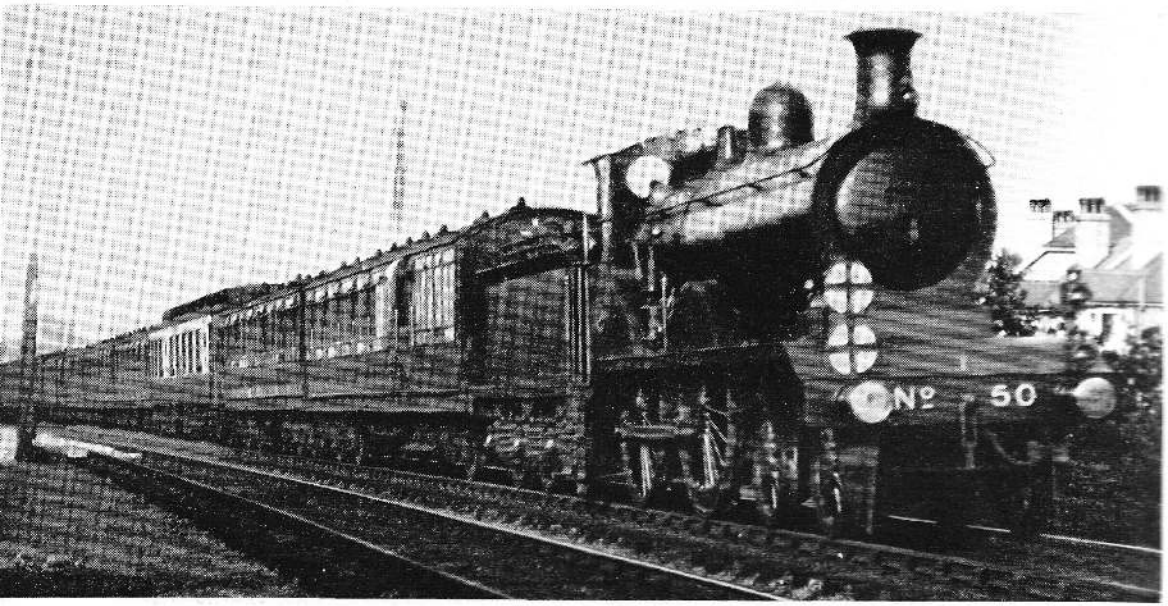
A REIGN ENDS

So, after just over a century and a half, the reign of steam has come to an end in the country which first gave to the world the idea of steam traction on rails. Well, all but to an end; there will remain the short steam-worked lines in the possession of enthusiastic amateurs, and even British Railways will continue to depend on steam for its operation in summer of the narrow gauge Vale of Rheidol line in Wales. We shall also be able still to feast our eyes on some of the famous locomotive giants of the past, such as the 126 m.p.h. streamlined L.N.E.R. *Mallard* in the Clapham Railway Museum, the Great Western *Caerphilly Castle* in the Science Museum at South Kensington, and some others.

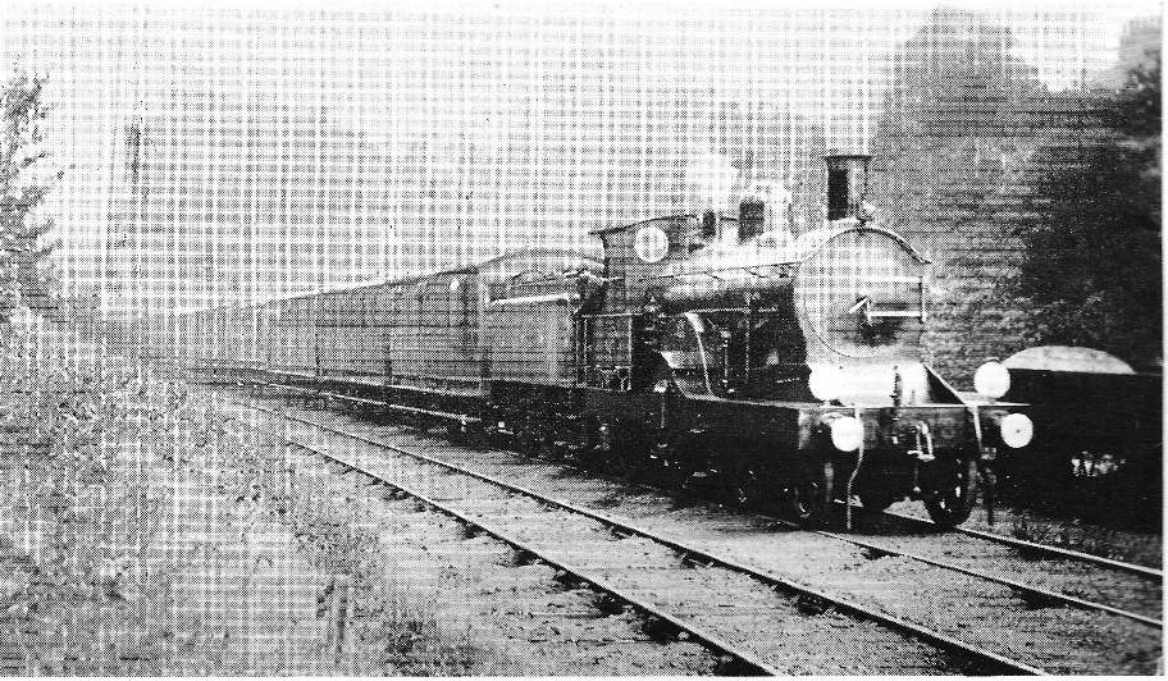
But these nostalgic reminders of the past will be lifeless; it was their characteristics as living creatures that made them so infinitely attractive—their loud voices when working hard and their contented purr at speed, their flashing motion, and their majestic appearance as they dashed along in full cry at 80 or 90 m.p.h. with their weighty trains and trailing plumes of condensed steam and smoke. No diesel or electric locomotive can ever afford the same thrill. With the disappearance of steam there also disappears a craft.

However, one is bound to admit that the driver of today, if no longer a craftsman of the old order, has to be a technician of no mean ability in controlling the extremely complicated machine of which he is in charge. This technical mastery may be compared with the firing skill that was needed in steam days, both in ensuring that sufficient steam was available just when the driver required it most, and that none was blowing to waste when easier work lay ahead, while the driver's work, with constant manipulation of cut-off and regulator opening to meet the changing conditions of gradient and the demands of load and of booked times, required driving technique of the highest order. On both these grounds the end of the steam era cannot be anything but a matter for regret.

Cecil Allen



Old timers



ABOVE LEFT: A scene on the Brighton main line in the early years of this century with R. J. Billinton 4–4–0 No 50 (originally TASMANIA) of 1901 heading an express including a Pullman car. The LBSCR had no corridor coaches.

ABOVE: London Bridge on a winter morning 70 years ago, full of Stroudley engines.

LOWER LEFT: The Great Eastern Railway worked its Cromer expresses with a class of ten oil-burning 4–2–2 type engines from 1898 to 1900.

BELOW: Dug out of retirement—Stirling No 1, the Great Northern 1870 4–2–2, on the RCTS train of period coaches run in September 1938; this was the forerunner of today's enthusiasts' specials.

[C. R. L. Coles

CONTINUED FROM SUMMER 1968

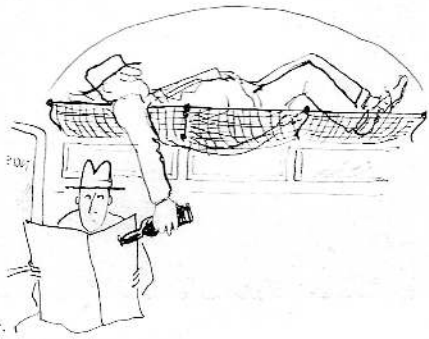
FROM WATT TO KILOWATTS

BY W.M. ILLS

D cont.

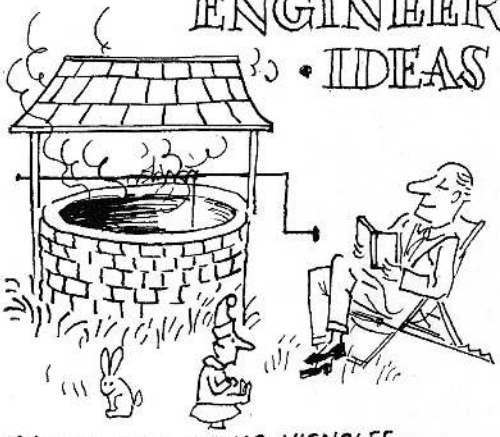
D for Directors. You will have noticed, or perhaps not, that I have a lasting affection for the GC. Mr Robinson in particular is a hero of mine, and of all his work I claim that his *Directors* were the most beautiful engines ever built. Argue it out among yourselves and let me know when to go on. Ready? Good, *Earl of Kerry* is an old Gorton legend, as it once did 100 mph. I was fortunate enough to travel behind him when this fire of youth had somewhat burned out and he ran our homeward train on the CLC. He was content to ramble along in the general direction of Chester and stopped whenever he was asked to, which was usually just when he had got into his stride. However, his powerful exhaust cough echoed through the sylvan glades of Delamere Forest as he rumbled along in a veritable Kerry dance.

Now that diesel multiples have reduced the line to mediocrity I often sigh for those old pensioners which the big companies always turned out to spend their declining years in those Cheshire pastures. I once saw *Cornwall* come in from the Crewe Branch on an Engineers saloon. I can smell the hot oil and cigar smoke now!

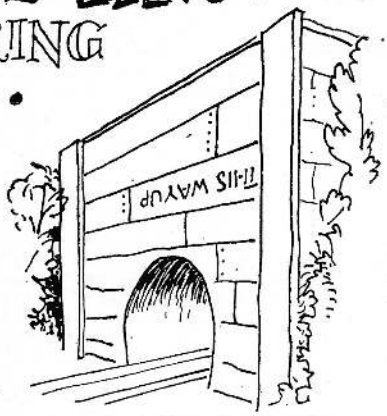


I never interfere with people sleeping in trains.

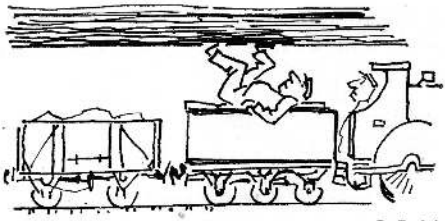
SOME LITTLE KNOWN ENGINEERING • IDEAS •



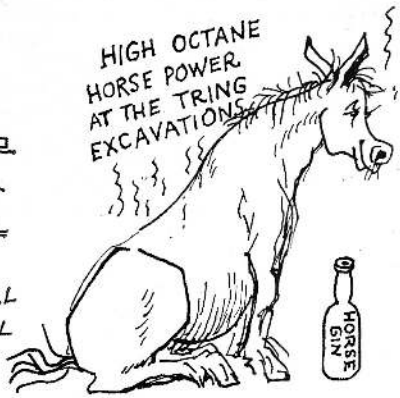
UNUSED IDEA OF MR VIGNOLES FOR BEAUTIFYING WOODHEAD VENT SHAFTS

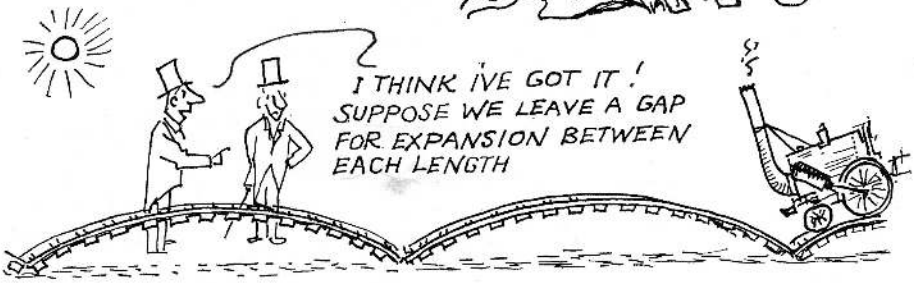


FIRST ROUGH DRAFT BY MR. BRUNEL FOR A TUNNEL IN WILTSHIRE.



EMERGENCY BREAKDOWN DRILL FOR STANDEDGE RAIL OR CANAL TUNNEL





E

NOW FOR E—EUSTON, EXPRESS, ENGINEERS AND EARTHWORKS

Euston. It is rumoured that Euston Station stands on the sight of a Georgian folly or Ha ha known as "Catch me who can." This it appears was a sort of early train set with a circle of lines round which gyrated a primitive train to the astonish-

ment of the local Bucks and Blades. Be that as it may there has always been an aura of history wafting about there. Take the Doric Portico, yes I know somebody already *has*, but the ghost of Pheidias, the designer, is occasionally seen coming up out of the Underworld Station. They do say too that the shade of Sir Richard moons about near the old York platforms.

Cables were used to haul the first trains out of Euston. Look up now dear traveller and what do you see? Cables again, what for? Why, for hauling the trains out of Euston!

Expresses. What a world of memories that word conjures up. Flying steam, rolling buffer beams, the beat of the bogies and the signals all off! Sheer poetry: listen.

When I was young, some years ago.
The world was calm, the pace was slow.
We did not dash about the place.
But took things at a gentler pace.
And for those days, quite gone I fear,
I shed a large nostalgic tear.

Dear Grandpa and all his brood,
Shunned speed and thrills they ne'er pursued,
Except for one though none the less,
And that? To ride a Scotch Express.
Gone now the steam, the power, the pace,
A brimming tear runs down my face.

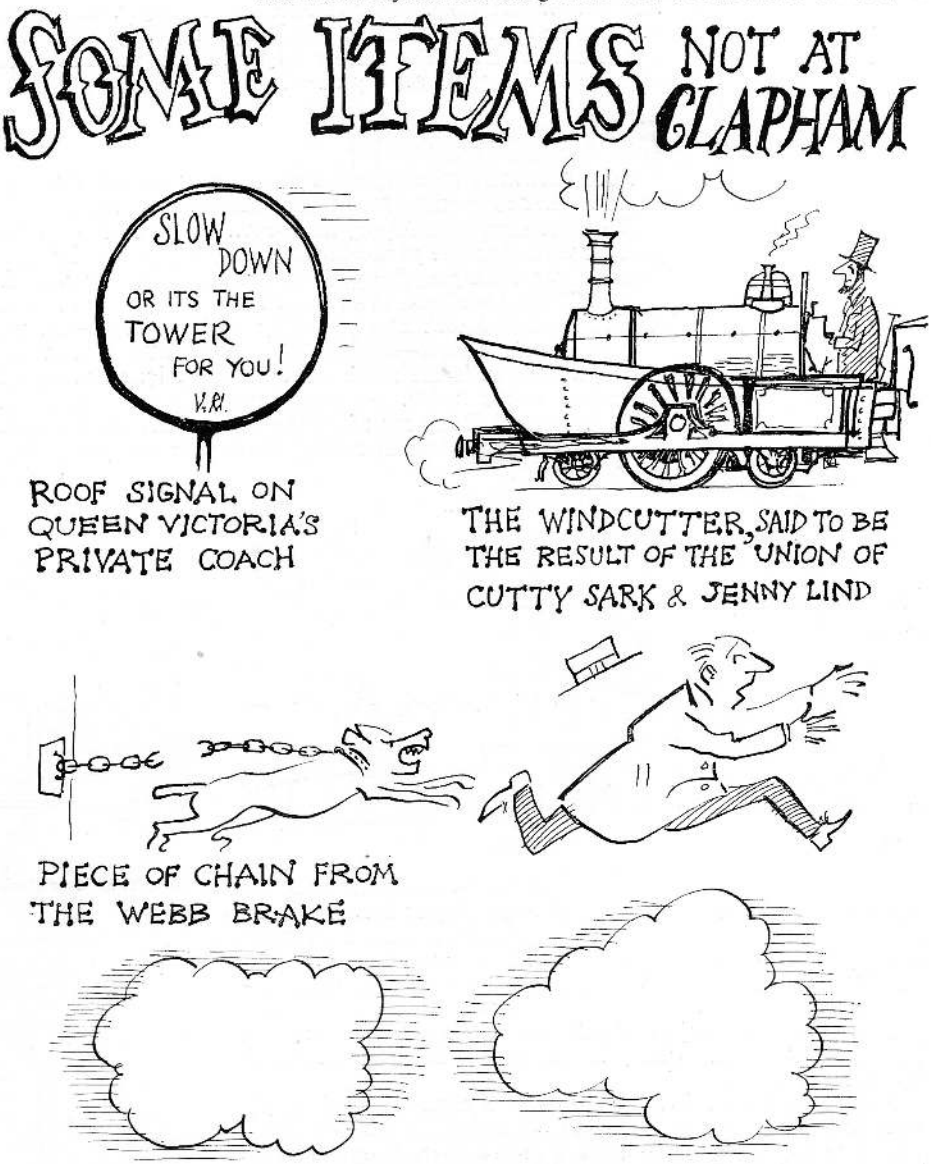
But do I hear the diesel mutter,
The 'lectric spark and angry splutter?
We go as fast they well may say,
On welded flat bottomed P. way.
But with no steam I firmly stress.
They merit not the name Express.

Need I say more?

Now my good fellows, we want a 60ft cutting for half a mile here.

E for Engineers. I don't mean the Casey Jones kind, but the great builders of the Iron Way such as Locke or Brassey. George and then Robert Stephenson, IKB (he keeps cropping up, doesn't he?). We can kill two birds with one stone here because we can put EARTHWORKS in with this bit.

How they ever threw up those high embankments and dug those cuttings with pick and shovel is a mystery to me. I once decided to make a rockery which entailed moving several barrow loads of earth, and after about half an hour I had convinced myself that the garden would look much better with-



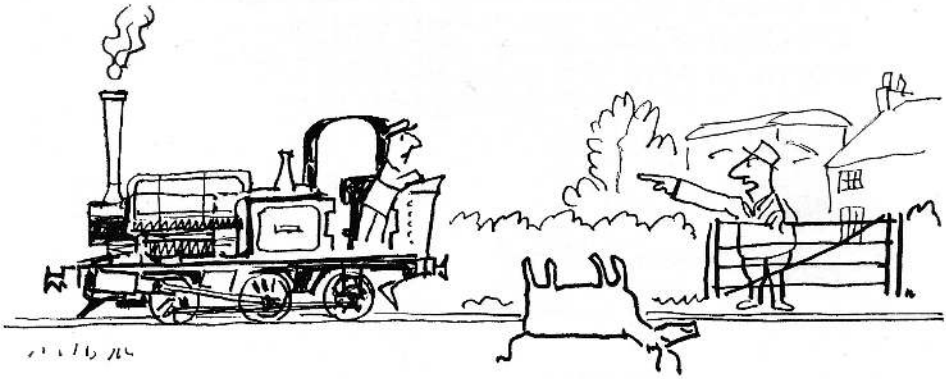
out a rockery after all! But think of Tring and Boxmoor and wonder! I must tell you this. When I dig as I sometimes do in little plot, I occasionally unearth broken clay pipes. I feel sure, that since I live quite close to the old Grand Junction, that these pipes were dropped by the navvies back in 1840 or so. Quite romantic, isn't it?

Mr Locke built a viaduct near to me over the Weaver at a spot where Edward I founded Vale Royal Abbey and, not unreasonably, it is called Vale Royal Arches. Now why am I telling you all this? Well, about five miles farther on at Sutton Weaver, there is another viaduct, much longer, and writers of books about engineers and railways call this latter Vale Royal and it's not! The editors might cut this out I fear, but anyway I have got it off my chest.

F

F for FLYING SCOTSMAN, FOG SIGNALS, FISH TRAINS, FARMER'S FRIEND, FLYERS (HIGH), FURNESS RAILWAY, and FILMS

We must start with *Flying Scotsman.* In all fields of transport it seems that one particular specimen catches the imagination, as for example, *Cutty Sark,* or *Tin Lizzy* or *Sopwith Camel.* There have been several such characters in the railway world, *Rocket, North Star* and *City of Truro* but,—oh well alright, *Jeanie Deans*—these LNW fans! But to continue, *Flying Scotsman* is the name even the most ignorant man in the street would know. He would probably call her *Flying* Scot! Horror!! But how often the newspapers do the same, don't they? It is as bad as calling Fowler's masterpiece *Royal Scotsman.*



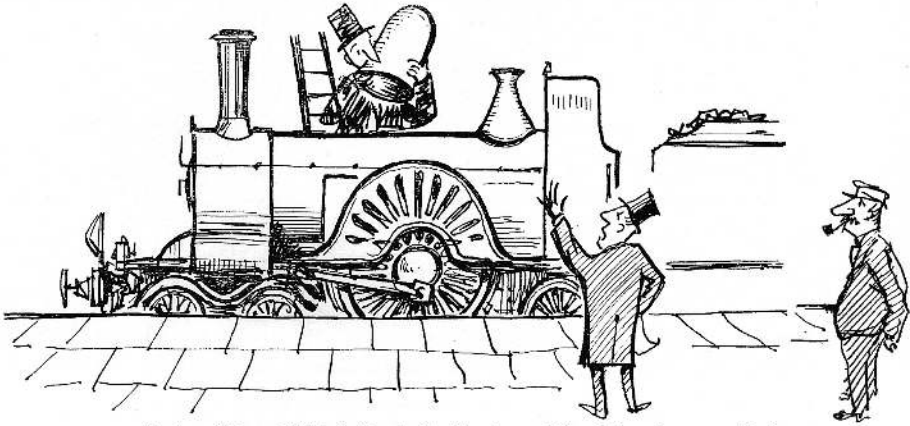
Well, it's no friend of mine!

But down to facts, the *Flying Scotsman* has had an interesting history. She was designed by Sir Nigel Pegler from an idea of Mr Alan Gresley, and she was a great success even after the railway people said she couldn't be. I bet they wish they had the money she has made since she was sold to that far-sighted businessman.

Finally, on the subject of this loco, have you ever thought how queer the name really is. Imagine a dour Scot actually flying, kilt and all!

Furness Railway. Ever since I saw a cigarette card in my boyhood of a huge tank engine belonging to this company, I have found it impossible to believe that there is eough room up there to have a railway with such big engines. Although the Wirral Railway had some pretty big tanks didn't they? The

Bury *Coppernobs* were more in keeping with such small neat little systems, don't you think? Well the Furness did run some for a long time after the other companies had gone in for bigger things. The *Coppernob* was a utility loco. It had no running plate. It had the minimum number of wheel spokes and no dome. I am not holding it against the old dear that no dome was included in the specification, far from it. I am not convinced that domes are at all necessary. Stirling did not bother, nor did Churchward; Stanier did and he didn't, Marsh once put TWO on, but when you get them without funnels like *Victor* from Lloyds Paper Mills or the MD and H Board's Andrew Barclay, I feel that enough is enough!



"No - no, it's no good. Leave it off—we'll do without one completely."

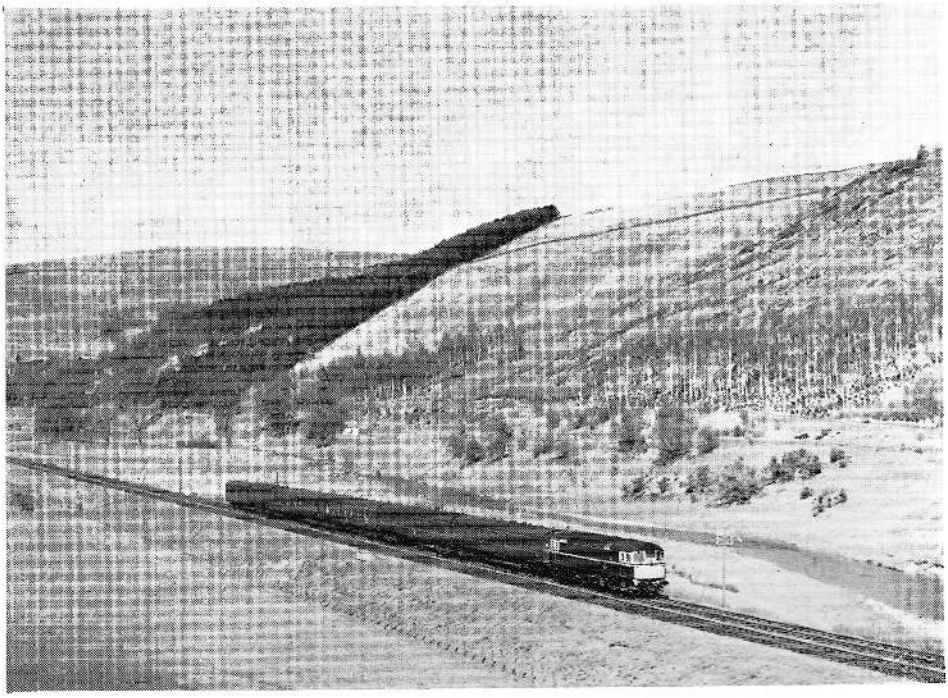
F for Films Which Include Trains.—The blunders made by film people when trains are concerned are perhaps not noticed by the less knowledgable in the audience. For the railfan, however, the fact that the hero starts his dash to Scotland on the Southern Railway, and is seen next in a Great Western train passing over the Saltash Bridge only to appear struggling with the bad men hanging half out of the open door of the *Royal Scot* hauled by a Midland Compound—well need we go on? Why they don't employ someone who knows a bit about the matter I don't know, but I suppose they will go on using those old film sequences all in the wrong order, just as the BBC used that noise of the slipping compound for years whenever a station sequence was required.

Parsons are other railway enthusiasts.

Finally, Funny Books About Railways. To the real maniac the railways are no laughing matter so that one is on very thin ice if one tries to poke fun at them. However, such good-natured people as the fans always are will tolerate the odd joke, provided that it is not at the expense of their favourite line. On any account, most maniacs are either parsons or schoolteachers who have forgiving natures anyway. The funniest book on this subject is in my humble opinion—but no—modesty forbids.

Oh one last F before we forget. *Fog Signals.* The good old words are often dropped nowadays and we hear them called DETONATORS. Ugly word! And it gives no hint of the drama evoked by the older word. However, whenever I am in a foggy train and one erupts under the wheel near to me, I jump like mad and half expect to see bits of wheel go flying past the window. It never seems to happen, so I suppose they know just how much the wheel can take.

To be continued

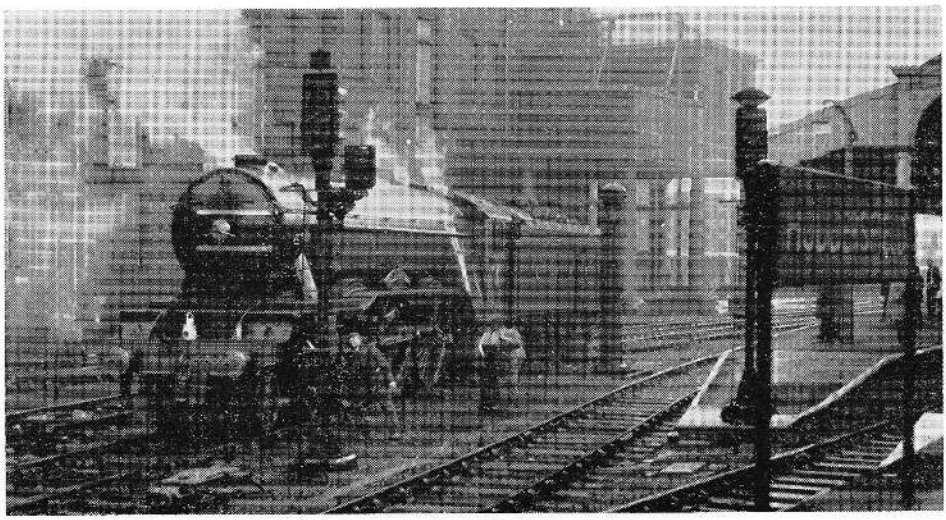


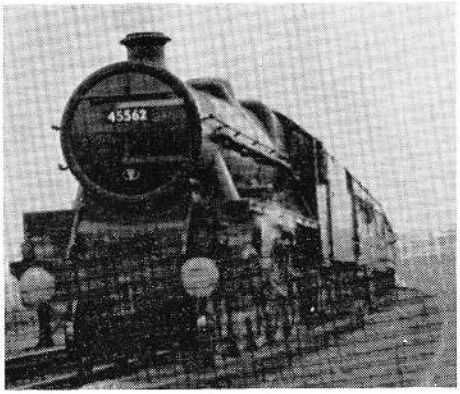
Edinburgh–Carlisle train in 1965 near Stowe on the Waverley route which closes in December. [J. C. Beckett
Swansea–Manchester train, 1952, at Llanvihangel Summit, with Castle 4–6–0 5089 WESTMINSTER ABBEY. [R. J. Doran

Picture spread

Euston–Carlisle express climbing from Oxenholme in 1950 with Royal Scot 4–6–0 46142 THE YORK AND LANCASTER REGIMENT.
[E. D. Bruton

Engine No. 4472 FLYING SCOTSMAN pauses at Huddersfield on March 15, 1968 en route to Stockport.
[J. R. Sugden





ALBERTA

By John A. Lines

As I Walked down the office I paused to exchange a few words with a friend. "Next Saturday the 10.17 from Leeds to Carlisle will be worked for the last time by a Jubilee," he said. It was a casual remark, but one to provoke the strongest feelings—and action. Would it be worth while, I wondered, to get up at two in the morning, catch the train to Birmingham, wait on New Street station for nearly three hours for the Leeds and Carlisle connection? Of course not, quite absurd, out of the question . . .

Next day I telephoned the motive power depot at Holbeck. Would a Jubilee in fact be hauling the 10.17? "5552," came the reply followed at once by the "pips" which put an end to further inquiries. "5552," I blurted out to my colleague. "Impossible," he replied. "That was *Silver Jubilee* herself and she was scrapped ages ago; I know the bloke who's got the name plates." Somewhat crestfallen, I began to have doubts about the venture, until he added: "5562's more likely—*Alberta*—she's been seen quite a bit around there." Like many engines of her class she bore the name of a former part of the British Empire. Most of them have long since gained independence and changed their names. The importance of steam and the fortunes of the Empire have, not without reason, risen and fallen together.

At Birmingham I encountered more people making their way north for the same purpose. Having inquired of the guard if the train reversed at Leeds I boarded the leading coach. It would become the last when engines were changed and I should be able to get some good "cine" shots of *Alberta* going round sharp curves.

As we entered City station there she was, spick and span, waiting to back on to the train. A "bar sinister" was painted across the number on the cab side as though cancelling her claim to rank amongst the legitimate locomotives of British Railways. I rushed to the end of the platform and found myself in a scrum of photographers. We charged down the ramp on to the rails in front of the engine. A majestic sight from that or any angle. Imperious, like a sphynx, with her buffers for paws stretched out in front of her and the tapered boiler swelling out towards the firebox like the body of some lithe beast. A beautifully proportioned machine: shapely chimney, well contrived cab and tender to match, continuous platform dropping in neat curves at front and rear, a splendid piece of industrial design.

I scrambled back through the train to my seat in the rear coach, tripping over a portable tape recorder switched on ready to catch the first sounds of departure. "Excuse me," I said for the hundredth time, wishing I had a tape recording of those words as I pushed past yet another fellow enthusiast leaning out of the corridor window to get a shot of *Alberta* as she set out. Back in my compartment I found it full of men armed with stop-watches, gradient profiles, cine and still cameras. Just in time. With a "whoop" from her deep bass hooter we eased out of the station. At first I could hear nothing, but soon the driver opened her up and the triple beat of her exhaust became audible.

Well-wishers, photographers, even women lifting their babies to wave a hand lined our route all the way, some perched precariously on bridges, others clinging to the rock sides of cuttings. Royalty could hardly have commanded a more loyal response.

As we thundered past my old school at Apperley Bridge I wondered if anyone was watching. How many times had I stood up in the middle of a history lesson to catch a glimpse of a "Jube" rushing past (the exhaust now a continuous pulsating roar)! "A hundred Puff-puffs, boy," the history master bellowed if he saw me do it, and I would have to write the words out the same afternoon. This time I was on the other side of the fence, in more senses than one: over thirty-five and hauled by a locomotive not much younger than myself.

At Skipton the train drew into the slow platform to let the fast train leave first. Her diesel locomotive, efficient, but dull in comparison with *Alberta*, as a president is

OPPOSITE: Silver Jubilee Class 4–6–0 45562 ALBERTA approaching Ribblehead Viaduct on August 26, 1967, hauling 0640 Birmingham New Street to Glasgow on the Leeds–Carlisle stage for the last time. [Colin Slade

BELOW: BAHAMAS, preserved Jubilee 5596, owned by the Stockport (Bahamas) Locomotive Society, after restoration by Hunslet Engine Company in 1968. [Hunslet

to a queen or a party chairman to an empress, was ignored by everyone. Sixteen minutes to wait for us, however, and time to get some shots of taking on water and to admire the profusion of decorative iron-work supporting the station canopies.

Beyond Skipton one of my companions leaned across: "Look out for Batty Moss viaduct." As the line swung round to the right I could see the fine rhythm of arches of that megalithic structure built by the Midland Railway nearly a hundred years ago. More splendid than a Roman aqueduct, yet the aesthetes of that day had little use for anything to do with railways.

Then began the long climb. Groans of dismay as signals checked the ascent and the driver had to coax *Alberta* up the steep incline from a near standstill. But by the time we reached Aisgill summit we were pounding along so fast that the sign which marks the spot flashed past too quickly to snap it. Down the other side of the incline: stop-watches clicked, faces became tense, eyes gleamed and lips moved silently as though in prayer. "Doing a good seventy-three, I reckon," said one; "at least that," agreed another.

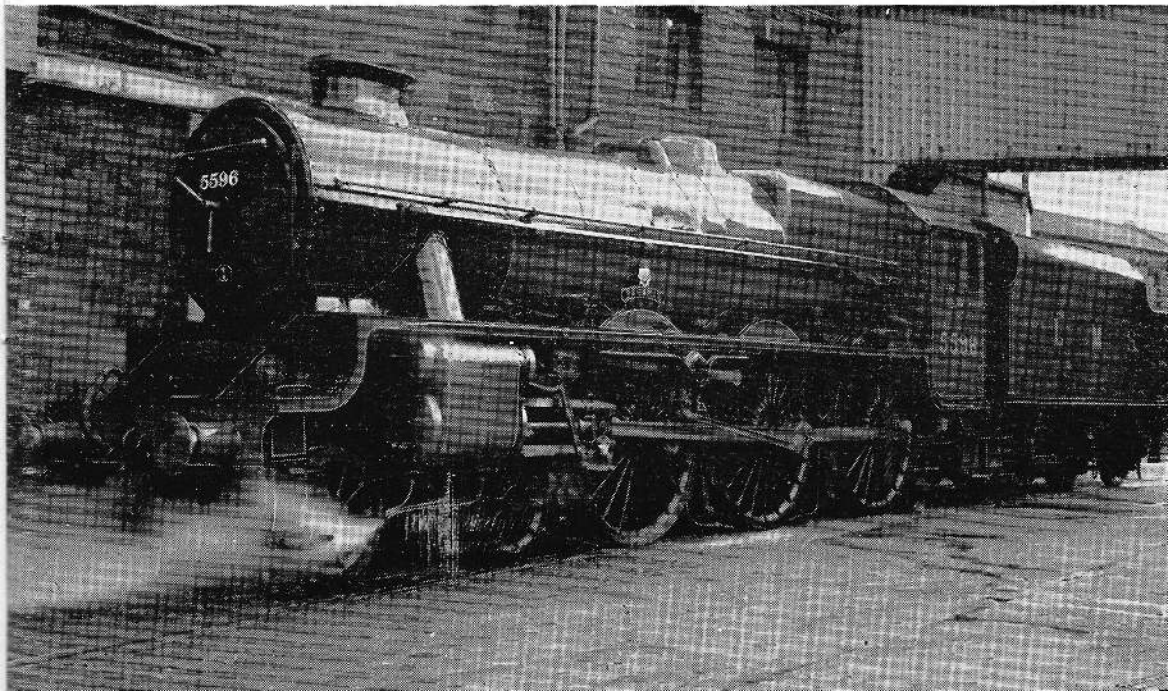
From then on tension relaxed. People began even to look a little bored despite magnificent views towards the Lake District. One man nodded off.

At Carlisle our paraphernalia was hastily gathered together. "Good afternoon," said someone with deflationary formality. "Has it been a good run?" I asked innocently. "Not bad: started nine minutes late and that's about what we are now."

I had barely time to dash across the footbridge and run up to the end of the platform before *Alberta* gave a penultimate hoot and slid away to the engine sheds—noble sound which has been heard at Carlisle throughout six reigns, to be finally displaced by the braying of a mechanical ass, the synthetic "ee-aw" of the diesel! Was it imagination or did I hear another strangled croak in the distance? Those miniature organ pipes which the LMS, like the Caley before it, had preferred to the customary whistle often gave an uncertain note. In the circumstances it had horribly sinister overtones.

I returned via Preston and by the electrified route through Crewe—famous for a century for its great locomotive works. Iron and steel, coal and steam: the former sources of British prosperity. Here they built a locomotive and named her *Queen Empress* in honour of Victoria's Diamond Jubilee, and later *Silver Jubilee* in George V's reign.

I looked at the small austere box on wheels at the head of the train and compared it with the splendour of the Jubilee. Not a trace of glamour here, yet we were "doing a ton" in no time at all, quietly, without fuss. Looking through the window I was astonished at the speed with which ancient landmarks vanished into the distance. Sic transit gloria mundi. "Progress," I mused, reclining comfortably in my seat—and the price of progress. Sic transit. . . . In another hundred years . . . ?



A push to prepare Castle 5045 EARL OF DUDLEY, for service to the West of England at Paddington loco yard. [Eric Treacy

Famous trains of the World

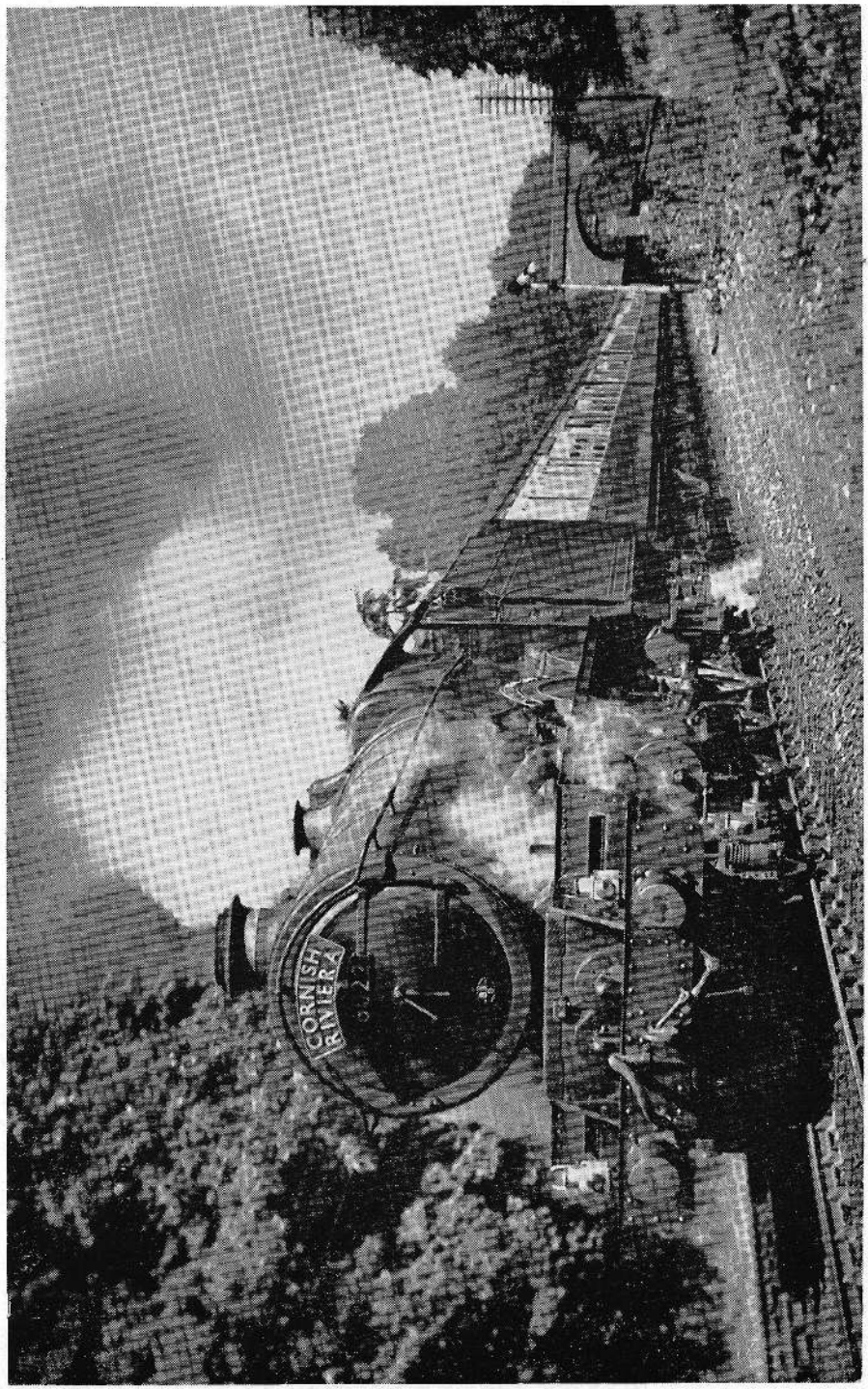
Cornish Riviera

By TREDEGAR COOPER

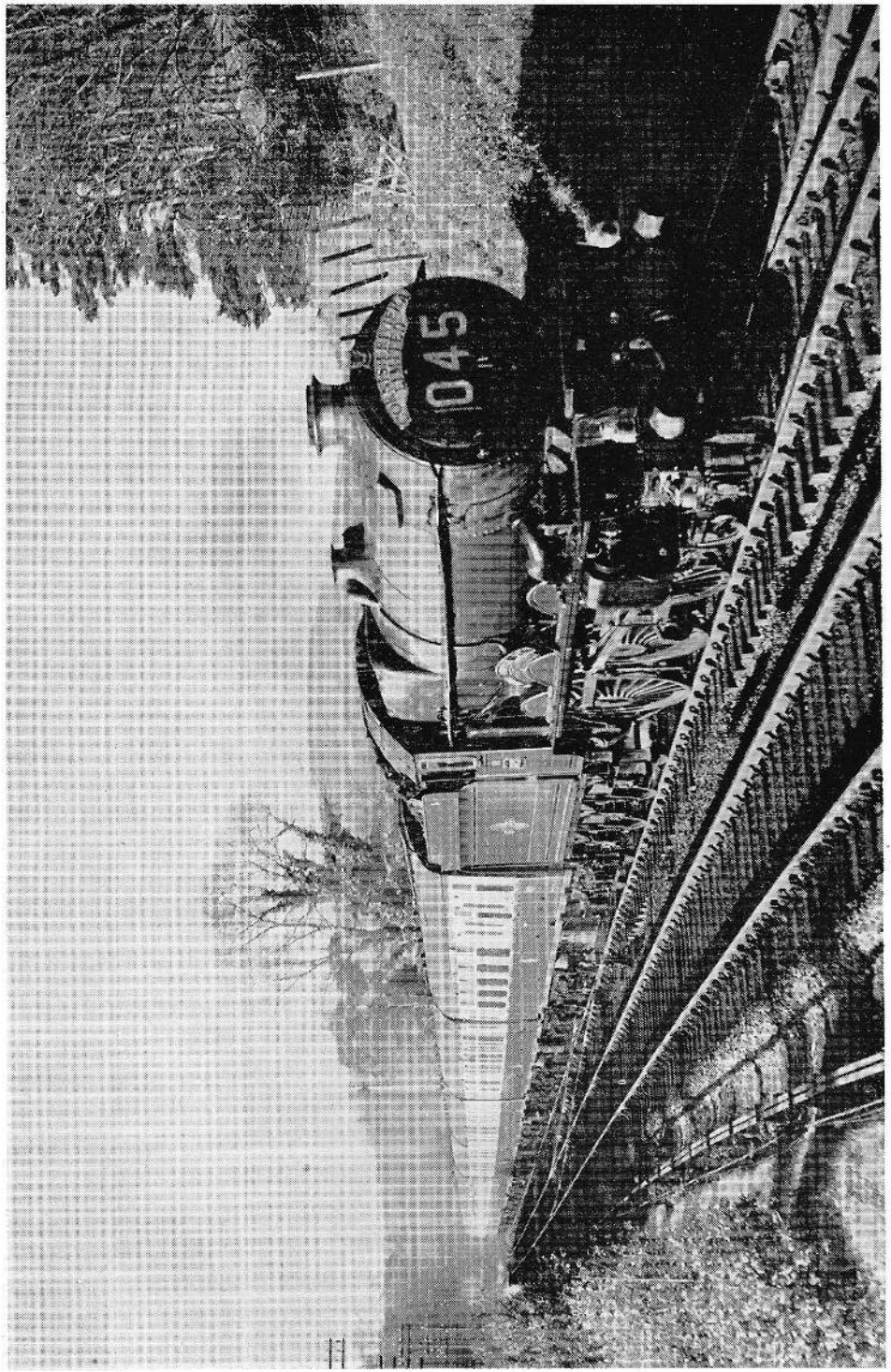
THE latest development of diesel traction on the Western Region of British Railways brought about in May, 1968, a further acceleration of services between London, Plymouth and Penzance so that, despite the clumsiness of permanently double-headed motive power, faster times are now being achieved than ever before. So let us look back and outline the story of the *Cornish Riviera Express* which the Great Western Railway made famous in 1923, when the Castle class engines first appeared, through W. G. Chapman's book, *The 1030 Limited.*

The story of the modern train began in the early years of the twentieth century, when some GWR publicity genius noticed the similarity between the shapes of Cornwall and Italy and struck on Cornish Riviera as an advertising slogan. On the wall of my garage at home I cherish an enamelled tin advertisement plaque issued by the Great Western which shows the Cornish and Italian peninsulas as like as two peas and recommending a journey by GWR to the former.

Paddington diehards liked to think of the modern train as a reincarnation of *Flying Dutchman,* which began service from Paddington to the West of England as far back as 1862, when the 7ft gauge was still supreme on the Great Western, although the broad gauge was only laid over the West Cornwall to Penzance in 1866. When first introduced *Flying Dutchman* travelled at the highest speed so far attained in public trans-



Great Western 4-6-0 6022, KING EDWARD III, on down Cornish Riviera near Reading West. [M. W. Earley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port; it ran via Bristol and early in its career it covered the 246-mile journey from Paddington to Plymouth in 6¼hr. By 1935 that time sufficed for the *Cornish Riviera Express* to run from Paddington all the way to Penzance—a distance of 305 miles—with a vastly heavier train. Another predecessor service of the *Cornish Riviera* was the *Cornishman,* as it was unofficially known, the train that began in 1890 to leave Paddington at 1015, reaching Bristol in 2½hr and Plymouth in 5hr 35min, with an 18.57 arrival at Penzance. This made several records through the years, especially after the gauge became 4ft 8½in; in 1903 it was timed to reach Bristol in 2hr at 59.2 m.p.h.

The modern train's origin was a result of the notice taken of a high-speed journey from Paddington to Truro on July 14, 1903, made by a train conveying the Prince and Princess of Wales (later King George V and Queen Mary), who were visiting the Duchy of Cornwall. The 246-mile run via Bristol from Paddington to Plymouth North Road took only 234min or 36min less than the scheduled time of 4½hr. Going non-stop, Bath, 107 miles, was passed in 82min, and Exeter, 193½ miles, took 172½min, or an average of 67.3 m.p.h. This was not at that time regarded as very U with a royal train, for which more sedate running was usually scheduled. It is certain that the royal couple enjoyed the experience and the Prince, later to be King George V, admitted that he had been thrilled by it.

To the GWR officers of the day this attitude set a seal of approval on high-speed running and from the opening of the summer service in 1904 there was a 10.10 train from Paddington which ran non-stop to Plymouth by a route 245.7 miles long, via the Pylle Hill avoiding the line round Bristol Temple Meads. The engine on the royal special of 1903 was 4-4-0 No. 3433, *City of Bath.* An engine of the same class, *City of Truro,* on May 9, 1904, made a very fast run with ocean mails from Plymouth and made the railway writer, Rous-Marten, believe it had attained 102.3 m.p.h.; although it is now certain that speed did not reach such a sudden crest it is quite clear that these engines, with their long travel valve-gear, were very free running. George Jackson Churchward was soon to cap their performances with the four-cylinder Star class 4-6-0 engines, the forerunners of the Castles, to which type a number were converted. In the early days the Cities shared the work with the French de Glehn compound Atlantics and the early 4-6-0s and their GW-built Atlantic counterparts.

OPPOSITE: Up Cornish Riviera Limited *passing Rattery Box in 1958 and headed by King class 4-6-0 KING GEORGE VI.* [J. S. Fish

Originally the train arrived at Plymouth at 14.25, and at Penzance at 17.10. The timing from Reading to Bristol averaged over 60 m.p.h. Begun as a limited train, consisting of seven coaches including a dining-car, for a time the seating accommodation was limited in accordance with the name, *Cornish Riviera Limited,* chosen after a public competition in which the prize was awarded for the suggestion of *Riviera Express.* Success was so manifest that in the following year a new set of coaches was provided for 232 third-class and 36 first-class passengers, plus a diner with seats for 32 third-class and 18 first-class passengers. The GWR boldly experimented with omitting second-class accommodation on this train, now known to the staff as the *1030 Limited,* a name retained in railway circles despite the subsequent adoption of *Cornish Riviera Express* as the official title. Seat reservation was inaugurated at this time so that passengers for the first time could be assured of obtaining a seat, even at busy times, by using a little forethought. The trains were lit electrically; they were, in fact, the first on which electric lighting was substituted for gas throughout a complete GWR train.

From July 1, 1906, the GWR made a big move towards sloughing off its old reputation for being the Great Way Round. The shortened route to the West via Castle Cary, which effected a saving of 20¼ miles, by building 33 miles of new line, from Patmey to Westbury, Castle Cary to Curry Rivel Junction and Athelney to Cogload, came into use. Instead of following the old GWR main line from London to Bristol and then over the old Bristol and Exeter road, trains diverged at Reading to the Hants and Berks branch reconditioned, doubled and new lines via Newbury, Westbury, to Cogload Junction just before reaching Taunton. This enabled the timing of the train, which now left at 10.30, to be reduced to 4hr 7min for the 225¾ miles from Paddington to Plymouth (arrival at 14.37), and to 6hr 35min for the 305 miles from Paddington to Penzance, where the train came to a stand at 16.05.

The latest 70ft corridor stock, with recessed end doors, came on the service and no fewer than three slip coach sections were worked on the train. The maximum load was thus hauled over the easy grades to Westbury; lightened by one coach the train ran without stopping to Taunton, where another was dropped; after the section involving the climb to Whiteball Summit the Exeter portion was slipped and so the train was three coaches lighter to tackle the fierce gradient of South Devon. Other coaching stock appeared in due course, but always with the authentic Great Western air of distinction.

In the summer service of 1935, the Great Western's centenary year, the *Cornish Riviera Express* reverted to its original title, *Cornish*

Riviera Limited; it was actually limited to 10 coaches, only holders of seat reservations being admitted. The train then ran without any advertised stop over the 297 miles to Truro, service being confined to West Cornwall only. But there was an intermediate stop, at Plymouth (Devonport) for the purpose of changing engines. From Truro (stop at 15.55 to detach a coach for Falmouth) the train continued to St Erth (16.30) where the St Ives through coach was dropped; the main train reached Penzance at 16.45. On the Saturday version of this service there was no passenger stop before St Erth (299½ miles) and the train conveyed passengers for St Ives and Penzance only. More stops and more coaches (13 or 14) came in with the 1936 summer service.

By 1938 the train carried eight portions from London. The Westbury and Taunton slips were of two coaches each, destined for Weymouth at Westbury and for Minehead and Ilfracombe respectively at Taunton; the Exeter slip was substituted by a stop at St. David's and the Kingsbridge coach was worked forward on a stopping train after detachment there; at Par a Newquay through coach was dropped and at Truro the Falmouth coach was taken off; a St. Ives through coach was uncoupled from the main Penzance formation and the restaurant cars during the St. Erth stop. Sometimes a special Plymouth coach was included. The entire train of 14 coaches tared 498 tons when it left Paddington and was usually well over 525 tons when well loaded with passengers and luggage.

By 1939 the Westbury and Frome cut-offs had enabled those busy places to be by-passed and the Paddington-Exeter distance was 173.5 miles, due to be covered in 169 min at over 61 mph. Then 72 min was allowed for the formidable 52 miles to the engine change at Plymouth North Road, at 1435, where a Castle took over from the King. Penzance was reached after four intermediate stops, three with coaches to detach, at 1700. The summer service offered separate facilities to many of the points and the "non-stop" run to Plymouth then took 242 min, but this included a 4 min working book call at Newton Abbot to pick up an assisting engine for the traverse of the Dainton (steepest pitch 1 in 36) and Rattery (steepest 1 in 46) banks.

Improvement, after the dull patch of the war years, came in 1945 and 1946. The 4¼hr time to Plymouth was restored in 1952.

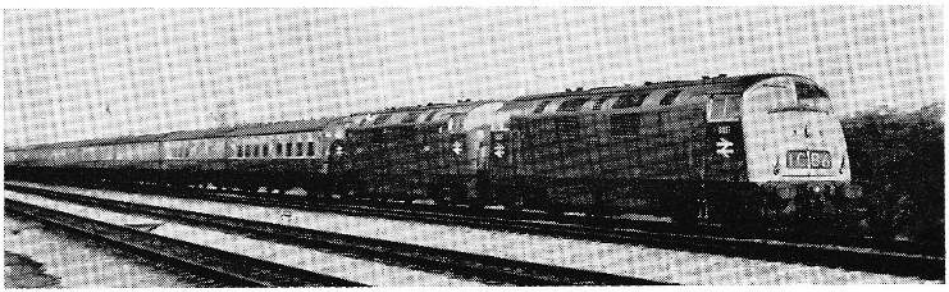
ABOVE LEFT: The down Limited leaving St Erth in August 1951 and hauled by Castle class 4-6-0 No 111, VISCOUNT CHURCHILL, rebuilt from Pacific THE GREAT BEAR. [B. A. Butt

ABOVE RIGHT: In 1952 4-6-0 5058 EARL OF CLANCARTY brings the CORNISH RIVIERA EXPRESS to a stand at Penzance, its western terminus, on a September afternoon. [Leslie Overend

OPPOSITE: Warships D827 KELLY and D822 HERCULES in multiple on a 1968 CORNISH RIVIERA test run. [WR

Drastic remodelling of the service came in 1961, after dieselisation. All the West of England expresses conveyed a Torbay portion for separation at Exeter and a stop at Taunton was also included. With the introduction of the Western class 2,700 hp diesels came accelerations—124 min for 142.7 miles to Taunton at an average of 69 m.p.h., the next 30.8 miles to Exeter in 33 min and then 75 min for the 51 miles from Exeter to Plymouth, giving an overall journey time of 4hr for the 225.5 miles from Paddington to Plymouth.

This year the time to Plymouth is 3 hr 45 min—a running time shared with the *Golden Hind,* so that there are four trips a day. The train is BR blue and grey; nameboards no longer distinguish it, through the BR vain desire to pretend that one train is as good as another. The coaches are now often *undistinguished* rather than otherwise, owing to the intensive workings of stock today. The 10.30 makes up to 12 coaches of about 402tons on a typical day. Motive-power-wise, the Cities, the Stars, the Castles and the Kings have departed. For the 1968 summer traveller the high-speed is derived from two of the Warship diesels in multiple —one more testimony to BR folly in not equipping itself long ago with 4,000 hp motive power to head trains of this calibre. This really is a notable achievement to cover 225.7 miles to Plymouth in 223 min with a 2 min stop at Taunton and one of four min at Exeter—and 4,000 hp in one unit and ability to use 100 mph running in suitable places would just make it remarkable.



The locos of the plates

by the Editor

THERE is a close link between two of the locomotives depicted in the Victor Welch colour plates presented with this issue and the one reproduced on the cover. The engines on pages 25 and 28 represent the early flowering of the genius of Sir Nigel Gresley. The Castle class locomotive built by Charles Collett in 1923, which is illustrated on the cover, is none other than *Pendennis Castle*, now preserved privately on the Dart Valley Railway, which was matched against Gresley Pacifics in the famous locomotive exchanges of 1925.

Gresley had become locomotive superintendent of the Great Northern Railway in 1911 and altogether had 30 years in that position and as chief mechanical engineer of the London & North Eastern Railway. In his first decade of office he played himself in with consummate skill. His first original design was a development of an Ivatt class of 0-6-0 goods engine with 5ft 8in wheels which carried out its intended mixed traffic duties most successfully. But for Gresley this could be only an intermediate stage towards a more sophisticated machine. In the following year this was produced as a 2-6-0 with 5ft 8in coupled wheels and 20in by 26in cylinders; Walschaerts gear and a high running plate were allied to a typical Ivatt boiler outline and cab. These 10 engines did well, but the next batch of 75 which came out in 1914 had 5ft 6in diameter boilers and lived up to the Great Northern's reputation of having engines which could make plenty of steam. The original batch was in due course rebuilt with larger boilers.

In the following years Gresley experimented with various multi-cylinder layouts. After a four-cylinder arrangement on an Atlantic locomotive he came to the conclusion that the even turning moment to be derived from a three-cylinder engine would be most desirable and it is rather remarkable that he was able to produce his first endeavour in this direction during a rather dark period of the 1914-18 war. His three-cylinder 2-8-0 appeared as a companion to the 456 class two-cylinder engines with three 18in by 26in cylinders, all of which drove on to the second pair of coupled wheels. In it for the first time appeared a Gresley conjugate gear by which one set of valve gear was eliminated. The big cylinder capacity of No 461 and the arrangement of cranks at 120deg gave the new engine considerable lead over existing locomotives at starting and it was able to shift 1,300-ton trains with notable economy of effort.

The lessons from this engine were devoted at Doncaster to the design of what was at first rumoured to be a new main-line express locomotive. Instead, it was a new version of the 2-6-0 class with 5ft 8in coupled wheels and three 18½in by 26in cylinders, no longer all inclined at a steep angle, and having what became Gresley's standard form of conjugated gear, with a horizontal rocking lever to operate the piston valve of the inclined middle cylinder. The arresting feature of the appearance of No 1000 when it came out at the beginning of 1920 was its enormous 6ft diameter boiler; it captivated the onlookers by its sheer size—and the traffic department by its capacity. Trains of 1200 or more tons were childsplay; on passenger service 20-coach loads were taken on and time kept on the main line. Free running at up to 75 mph, they became everybody's darling.

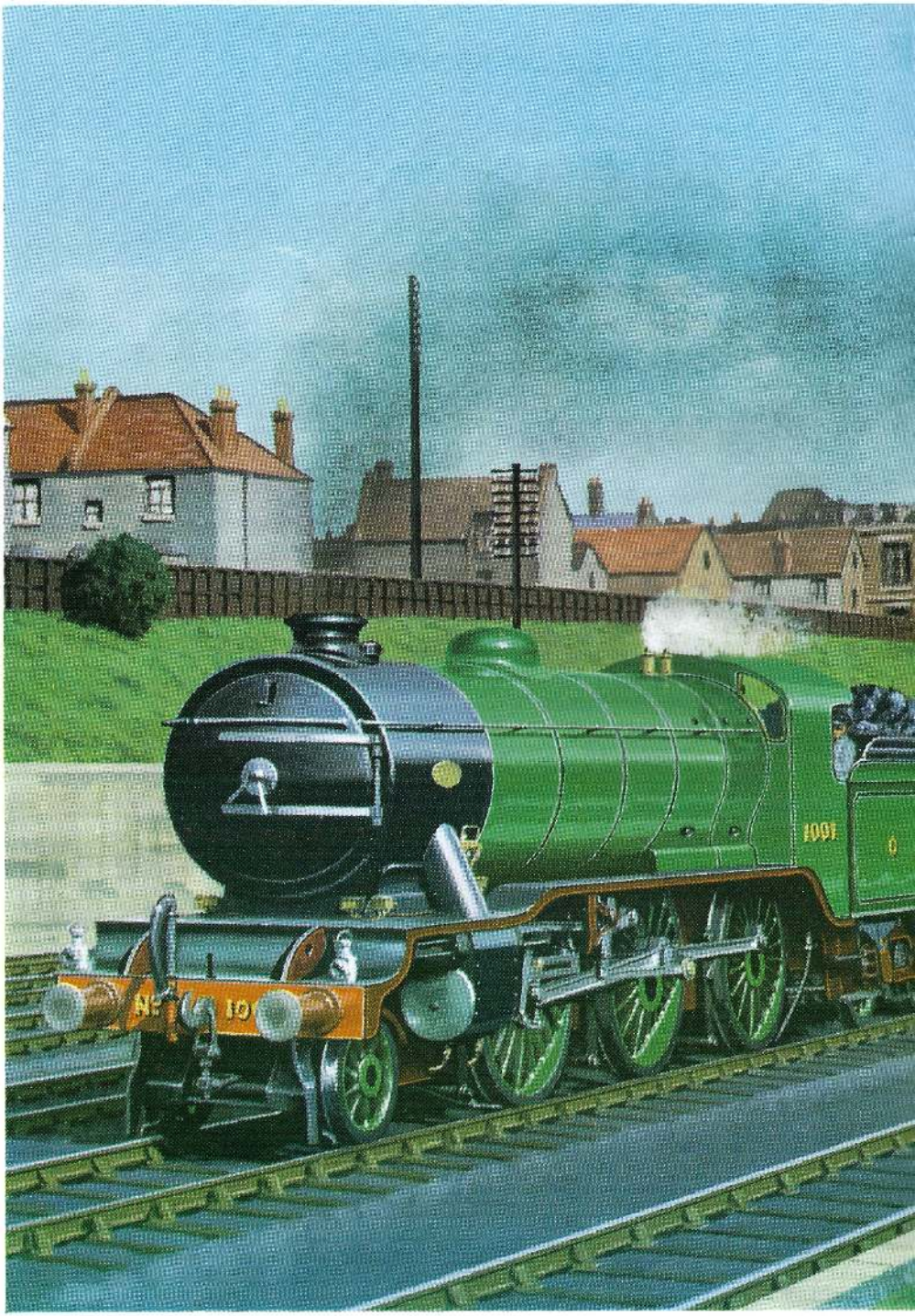
But Gresley saw that a larger boiler and firebox would be needed for sustained main-line express working over the long 1 in 200 climbs of the Great Northern line and contemplated developing the 2-6-0 into a 2-6-2—a locomotive he later produced for other reasons—because the pony truck of No 1000 was steady at high speeds. In the event he decided upon a Pacific and two 4-6-2 engines were produced from Doncaster Works just before the end of the Great Northern Railway's existence in 1922. He always alleged that the plate *Great Northern* over the middle splasher was not an attempt at naming the engine (not previously a popular line with the GN directors) but an indication of ownership.

The three cylinders were 20in by 26in, the coupled wheels 6ft 8in, and the working pressure 180lb sq in. The total heating surface was 3,455 sq ft compared with 2,308 sq ft in a big-boilered Mogul; the grate area of 41 sq ft might be compared with 28 sq ft on the big 2-6-0. The tractive effort of what became the K3 class 2-6-0 was 30,031 lb, whereas the Pacific was rated at 29,800 lb. The results of trials with the first two engines were so attractive that 10 more were ordered; first of these, No 4472 *Flying Scotsman*, arrived under LNER auspices and is achieving fresh fame for steam 45 years later in the ownership of Mr. Alan Pegler.

In that same year the Great Western four-cylinder Castle class first emerged from Swindon works. At the Empire Exhibition in 1924 at Wembley the two classes were strongly contrasted. The Castle 4-6-0, with its tapered boiler, seemed all lean and muscle alongside the mighty bulk of the LNER Pacific. With an engine weight of just under 80 tons in working order for a tractive effort of 31,625lb Castle fans could claim it a more compact power pack than the 92-ton rival with its 29,800lb tractive effort. It had four cylinders, 16in by 26in, 6ft 8½in coupled wheels, a working pressure of 225lb sq in and the benefit of the valve events which Churchward

Caledonian heyday: The Aberdeen-Glasgow Pullman express near Cove Bay, hauled by Pickersgill three-cylinder 4-6-0 No. 957, one of four built in 1921.

[From a painting by Victor Welch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The big Gresley Class K3 2-6-0 No. 1001 on a down Great Northern main line train at New Southgate, overtaking an 0-6-2 tank on a suburban train.

[From a painting by Victor Welch

Gresley Class A1 Pacific No. 2547 DONCASTER on King's Cross loco, London & North Eastern Railway. This engine was one of a batch turned out in 1924 and later rebuilt as Class A3.
[From a painting by Victor Welch

On July 24 the Government of Malawi issued a special set of postage stamps depicting locomotives. Designed by Mr. R. Granger-Barrett the stamps are photogravure printed by Harrison & Sons Ltd., on Malawi Cockerel watermarked paper in sheets of 60. The four stamps comprising the set are also available in the form of a souvenir sheet. The issue was handled in this country by the Crown Agents Stamp Bureau which supplies dealers. The 4d stamp (upper left) shows Bagnall 0–4–0 No 1, the first locomotive in what was then Nyasaland, delivered in 1904. It is still used for shunting. The 9d value (upper right) is a Henschel G Class 2–8–2 built from 1950 onwards. The 1s 6d (lower left) is an AEI 1200 hp diesel-electric, No 22 ZAMBESI, of the standard main-line type and the 3s stamp depicts the Drewry diesel railcar delivered in 1955.

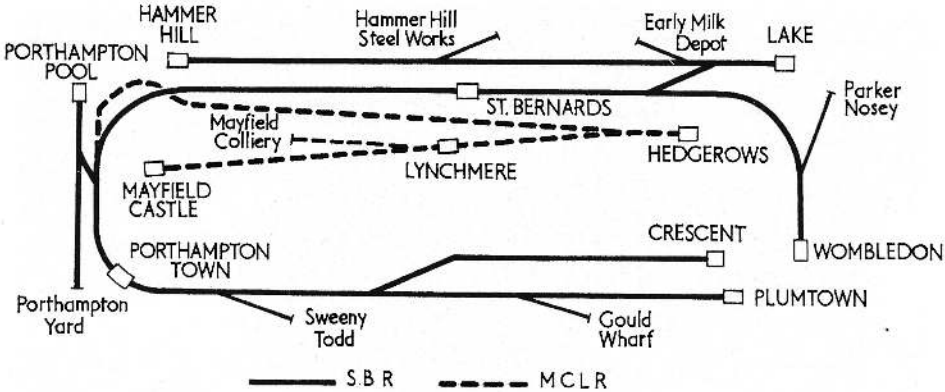
Locos of the plates

from page 24

had proved nearly twenty years previously to be the foundation of good locomotive running.

The exchange trials of 1925 showed honours even in many respects—the LNER locomotive on the Plymouth journeys certainly adhered closer to speed restrictions and point-to-point times and was somewhat hampered by some weak spots in the GW track. If Castle runs were better from Kings Cross to Finsbury Park the Pacifics were handier at getting through the 1 in 178 to Stoke Summit. But the ultimate result was to show the virtues of the Gresley firebox and boiler with cheaper quality coal, the advantages of high working pressures and benefit of the exchange was that in due course a new generation of LNER Pacifics appeared which incorporated the good features of both engines in a way foreseen by Mr. Cecil J. Allen before the rival performances took place.

The other Welch scene in this issue is of a Caledonian three-cylinder 4-6-0 on a Pullman car train before grouping. Here one has a handsome engine in which none of the lessons had been learned. So far as we know they never were applied and these machines remained disappointing in performance throughout their careers.



The South British Railway

By R. R. J. Plummer, M Inst T, formerly of the Chief Goods Manager's Office, LMS Rly., Euston, a past chairman of the North Western Section, Institute of Transport, a former member of the Transport Tutorial Committee, member of the Traders Co-ordinating Committee, member of the National Traders Traffic Association, member of Manchester Traffic Association, member of the Transport Committee of the Trafford Park Industries Association, etc., etc.

This fictitious railway history was written as background to Mr. Ronald Shephard's 0-gauge model railway; it resembles the story of many British railway companies and culminates in a financial and legal situation so complex that the South British was omitted from the Railways Act of 1921 and so continues its independent career.

CHAPTER I

CANAL AND TRAMWAY DAYS

It is the year 1804. Napoleon has just had himself named Emperor of the French. At sea Nelson is blockading the French ports with his line-of-battle ships, while in the open seas frigates with the sweet names of girls and flowers are fighting deperate and bloody single ship battles. In the coffee room of the Dog & Fox in the ancient High Street of Plumtown, then an overgrown village which liked to call itself a market town, Josiah Shephard and a few other local worthies are discussing the state of trade in Barsetshire.

Besides its weekly market, Plumtown boasts a brickworks and a tannery. The road to London is a poor one and the tolls are regarded as an oppression. There is tidewater at Porthampton at the mouth of the Womble River, but the river itself is a shallow stream liable to sudden floods. The meeting in the coffee room is considering no less a project than a canal from Plumtown to Porthampton, so that the bricks and the leather and also the grain from the fertile Barsetshire vales can be shipped to London by the brigs, ketches and schooners trading along the Channel coast. At that historic meeting was formed the Company of the Proprietors of the Porthampton Canal.

At the Plumtown end the canal started at a basin near the present pie manufacturing premises of Sweeney Todd & Co. Ltd. and the original canal warehouse with its projecting gable can still be seen alongside the SBR engine shed. The canal was always a struggling concern. The lock connecting the cut with the Pool at Porthampton was constantly silting up and the company's revenues were absorbed in heavy dredging costs.

Little wonder then that when the canal proprietors heard of the success of the Surrey Iron Railway, they decided to abandon their ill-fated canal and construct a horse tramway. Since the opening of the canal, Wombledon as a centre of trade had outstripped sleepy Plumtown, and it became the inland terminal of the new enterprise. Authorised by the Act of 1818, the Wombledon Tramway was opened in 1820, a horse plateway which ran from Banky Field near Wombledon to the Old Quay at Porthampton. There were connecting tramways in Wombledon to Mr.

Shephard's brickworks, Smellie's Tannery and Town Mill, a watermill which stood on the banks of the Womble River on the site of the present Wombledon Town Hall.

As a sop to the crestfallen inhabitants of Plumtown, the upper reach of the canal was kept open and a branch tramway ran from the main route to connect with the canal at Gould's Wharf. This of course necessitated the Company of Proprietors of the Porthampton Canal remaining in being as indeed it does today, although wholly owned by the South British Railway.

The Wombledon Tramway was moderately successful and fulfilled a useful function until 1840, when the manifest advantages of steam traction already demonstrated in other parts of the country made it necessary to raise fresh capital and to obtain a new Act to construct a conventional edge railway. This was the South Barset Railway authorised by the Act of 1840. It was desired to maintain the rights of way of the tramway branches in Wombledon so the Wombledon Tramway Company remained in being and still remains a constituent company of the South British Railway. The branch tramway to the Porthampton Canal at Gould's Wharf had never justified the expense of maintaining it and it was abandoned. In 1968 it is almost—if not completely—impossible to trace its route.

CHAPTER II

THE WESSEX & EAST BARSETSHIRE RAILWAY AND THE SOUTH BARSET RAILWAY

The South Barset Railway having obtained its Act in 1840, construction was pressed along briskly, mainly over the old route of the Wombledon Tramway. In 1842 it was opened for traffic from Old Quay (Porthampton) near the present Porthampton Yard to St. Bernards, and in 1843 the first train ran through from Porthampton to Wombledon with the usual jollifications thought proper to the opening of a railway in those days, including a firework display and a sumptuous cold collation served to the local worthies on the platform at Wombledon Station. Even after the railway ceased to be a novelty passenger traffic developed on a promising scale, but in 1846 we notice a despondent note creeping into the chairman's report.

In fact the South Barset was facing the old trouble that had ruined the Porthampton Canal years before. The continual silting of the Pool at Porthampton was rendering the Old Quay unusable except for vessels of very limited draft. Spurred on by this misfortune, Porthampton interests secured a private act for construction of a pier at the western end of the Pool in 1847, and the Victoria Pier Company constructed an iron pier a quarter of a mile long, with adequate facilities for the loading and discharging of coasting vessels. This was opened in 1848. Unfortunately there was no connection from Old Quay junction on the South Barset to the new pier until 1850, when the Porthampton Pool and Victoria Pier Railway was constructed by yet another company under powers granted it by an Act of 1849.

The South Barset was still a long way from prosperity and a proper development of the shipping traffic. There was a continual history of disputes between the three companies, between the Shephard interests represented by the South Barset, the Porthampton interests represented by the Pier Company and London financiers who had promoted the PP&VP Railway. All three gaily dissipated their shareholders' money in highly enjoyable legal battles. For years aged Chancery lawyers sipping their port in Lincolns Inn looked back to their youth when they had laid the foundations of substantial fortunes with briefs and refreshers out of such famous cases as "Victoria Pier Company v. South Barset Railway" and "Muggins v. Porthampton Pool & Victoria Pier Railway."

Neptune, an early Bury single of the South Barset Railway lived up to its name by being flung off Victoria Pier into the sea by employees of the Pier Company. In turn the South Barset nearly ruined the Pier Company by taking three years to repair the junction with the PP&VPR.

These troubles were resolved in 1856 by the astute Zachariah Shephard (son of Josiah of canal fame) who was by this time chairman of the Wessex & East Barsetshire Railway. By manipulation of the stock exchange and shrewd assessment of shareholders' voting rights he obtained control of all three companies. From 1857 all three were operated as one undertaking under the name of the Wessex & East Barsetshire (Extension Lines) Railway. As we have seen before in this history it was found inconvenient to dissolve the constituents.

CHAPTER III

THE SELSEY BILL & ABERDOVEY JUNCTION RAILWAY

The Selsey Bill & Aberdovey Junction Railway was one of the last manifestations of the railway mania of the forties. Whether the promoters really believed there was potential railway traffic between Selsey Bill and Aberdovey or whether it was just a scheme to take money off a public ready to invest in almost any railway scheme, we shall never know. Why the legislature ever passed the scheme is another mystery. The Selsey Bill & Aberdovey Junction Railway Act was passed in 1849, and it approved a

patchwork of local lines linked by running powers over the Brighton Railway, the Southampton Railway, the Great Western, the South Barset, and the Cambrian, with further powers to operate steamships from Aberdovey to Drogheda on the River Boyne. The operating difficulties of operating such a patchwork route, and what the Great Western thought about having to lay a third rail to accommodate the narrow gauge trains of the SB&AJR, were gaily skated over.

The scheme lay dormant until 1856 when, in order to save its Parliamentary powers lapsing, the company began to construct part of its undertaking, laying a line of rails along the route of the abandoned Porthampton Canal to Plumtown whence it was to have continued as a loop line round Wombledon and so to its projected junction with the Brighton. As may be imagined Plumtown inhabitants who resented their town being left to moulder at the end of an abandoned canal supported the scheme enthusiastically. Money ran out when the line reached Plumtown and the loop line round Wombledon was never built. There was trouble at the Porthampton end of the undertaking as well.

Zachariah Shephard had just got the Wessex & East Barsetshire (Extension Lines) undertaking on its feet and stoutly refused running rights to the SB&AJR, on the grounds that the Act accorded running rights over the South Barset Railway, which no longer operated a railway, although it still remained in being. The Chancery lawyers were licking their lips over the possibility of a really involved case, but the SB&AJR had enough to do to keep its navvies paid without indulging in a legal battle. In fact they executed a flanking move, which is one of the few cases on record of anyone getting the better of Zachariah.

Near the proposed junction of the Wombledon Loop Line and the former South Barset there was a siding serving a gravel pit, known officially as P. Lummer's Redcroft No. 2 Siding. This was acquired cheaply and with it the right of Mr. P. Lummer to run his own wagons hauled by his own locomotives over the South Barset. The triumph of the SB&AJ was short-lived. Money was running out and the possibility of constructing the Wombledon Loop Line was remote. The company's shares dropped in value abruptly and one unlucky shareholder exchanged a substantial block of them with a rag and bone man for two paper windmills and a nice plant. Putting the plant in his front window, he fixed a paper windmill to each gatepost of his house, and then hanged himself with his wife's clothesline. Another shareholder of more ebullient character papered his kitchen with his share certificates.

Zachariah Shephard, brooding over the fast one which the SB&AJ had pulled on him, acquired control, and swept it into his Wessex and East Barsetshire net. Thus the Wombledon Loop Line undertaking (which was never a loop line and never went near Wombledon) became a moderately profitable branch of the W&EBR and presented that company with the opportunity of building a new station for Porthampton Town nearer the town centre than the old station which now serves as Porthampton Yard.

CHAPTER IV

THE LOCAL LINES

The last chapter carried us up to 1860 and it is now time to consider the local lines and branches. The twenty years after 1860 were years of consolidation under Zachariah Shephard's able chairmanship. Permanent way was improved, iron rails giving place to steel. Curves and gradients were eased and stations improved or rebuilt. It was an era of profitable operation and Zachariah Shephard did well for his shareholders and even better for himself. In 1870 he built for himself an imposing country mansion at Lake on the downs to the west of Wombledon.

A fervent admirer of the pseudo-French chateau style of St. Pancras station, his Lake House was a copy of that remarkable building. For the convenience of his family and his guests he promoted a line which branched off the W&EBR north of St. Bernard's and ran up to Lake and this was known as Mr. Shephard's Railway. The railway was operated by an ex-South Barset Bury single and an immense Pullman car specially imported from America. The line was also used for the carriage of coal and household supplies. Under the shadow of the great house a small hamlet grew up. Harry Norman opened a smithy and opened the Chair & Key Tavern, and small cottages housed the families of the household servants. From such humble beginnings rose the now highly sought after residential area of Lake.

In 1880 this time of peaceful expansion came to an end. Barsetshire was changing from a county dominated by agriculture and its ancillary trades to one supporting a number of flourishing industries. The coasting trade at Porthampton was contracting, as it was all round the British coast, but the W&EBR board could see that deep sea trade prospects were good if facilities could be provided. The silting process at the eastern end of the Pool had continued but from some freak of the tides, caused perhaps by the construction of the Victoria Pier, the western end of the Pool was now subject to a strong scouring action and there was deep water close to the shore.

The land at this end of the Pool was flat

saltings, marsh and grazing land. At the beginning of the 19th century it had belonged to one Joseph Muggins who at that time combined a successful business as a butcher and grazier, with an even more profitable sideline in the smuggling trade. When he died in 1850, still unsuspected by the revenue authorities, he left a large fortune behind him, but being of a suspicious and avaricious nature, he also left a highly complicated will which his executors were still trying to settle in 1880—by which time most of the value of the estate had gone in legal battles carried on by all branches of the Muggins family who had an incurable penchant for litigation.

Zachariah Shephard, who wanted the land for an enclosed dock for ocean going ships, paid the worried executors a reasonable price and took over the unsettled estate. Soon the quiet pastures and saltings were attacked by steam shovels digging out what is now Ocean Dock.

His next problem was to connect the former South Barset line to Old Quay to his new dock estate. By 1880 Porthampton had extended so far to the west there was great difficulty in finding a right of way which would not entail pulling down a lot of expensive property. Resourceful as ever Zachariah saw the possibilities of linking up a tramway which ran down Tanganyika Street, connecting Earley's Dry Docks to a timber storage yard and which was connected with the former Porthampton Pool & Victoria Pier Railway. Earley's Dry Dock & Steam Trawler company conceded a wayleave over the tramway for a yearly payment.

Just beyond the timber yard were the premises of the Porthampton Gas Light and Coke Company with a long siding which provided a route to the new dock estate. This company, learning what was in the wind hastily had an amending Act passed to its original Act and changed its title to the Porthampton Pool Gas Light, Coke & Railway Company, and instead of obtaining a cheap wayleave the W&EBR had to pay expensive tolls for running rights. As we have seen earlier, Zachariah Shephard swallowed this rebuff, but in later years he juggled with the coal and coke rates so successfully that he was able to acquire the recalcitrant Gas Company at a fraction of its true worth.

The Ocean Dock was opened by the Duke of Cambridge in 1888. Although trains to and from the dock had to traverse Tanganyika Street at walking pace preceded by a man with a red flag, business at the Ocean Dock flourished from the first and the W&EBR entered on a period of vigorous expansion. In 1895 Zachariah Shephard died and the direction of the W&EBR fell into other and less resourceful hands.

Lake House was sold and later became a school. The land to the south was sold for industrial development. The line from the original "Mr. Shephard's Railway" was extended to Hammer Hill in 1898. Among the industries established on the line is Earley's Milk Depot and the Hammer Hill Steelworks and the Hammer Hill branch now brings substantial freight traffic to the main line.

In 1902 there was fresh development in the Plumtown district when the Crescent Branch was opened, one of the few branches which did not start as an independent railway.

CHAPTER V

THE MAYFIELD LIGHT RAILWAY

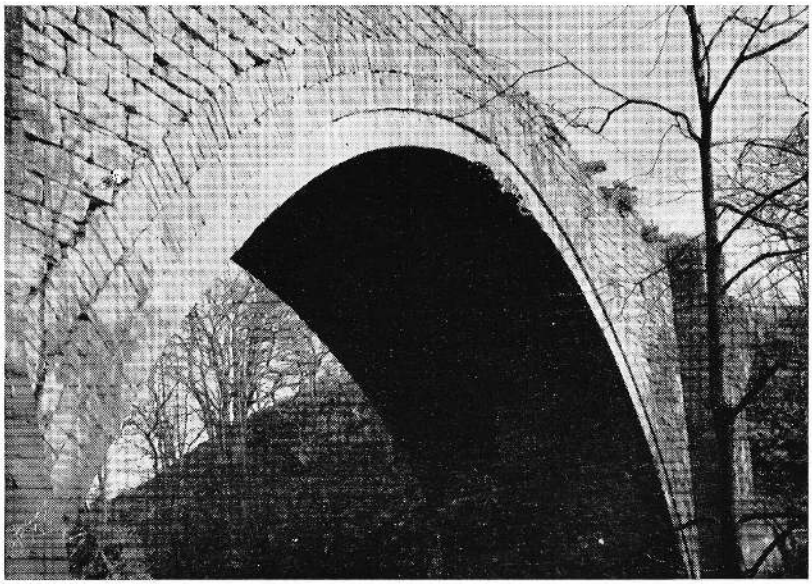
In the early 1900s when motor traction was still uncertain and still subject to vicious legal restrictions, it was confidently expected that the construction of light railways would aid the agricultural development of this country. The Light Railways Act, 1912, was the final legislation on this subject and it and its predecessor of 1896 enabled such lines to be constructed under the authority of a Board of Trade order, so saving the promoters the time and expense involved in obtaining a private act.

At this time the W&EBR was deeply involved in its London Extension plans which we deal with in the next chapter. A Mr. Ronald Shephard who was a distant connection of the late W&EBR chairman, already had extensive light railway interests and a wealth of engineering and railway operating experience, and he was quick to see the possibilities of the Mayfield Valley to the south of the W&EBR main line to Wombledon. The Board of Trade granted him the Mayfield Light Railway Order. Construction was started without delay.

The Mayfield Railway diverges from the W&EBR at Applepie Junction between Porthampton Pool Junction and St. Bernards, burrows beneath the main line on a steep gradient and drops to the valley floor at Hedgerows. Here the trains reverse and run along the valley to the picturesque village of Mayfield Castle. The line opened up a profitable tourist and residential business immediately. Two years after its opening, at the outbreak of the Great War, coal in workable quantities was found to the north of the line and a branch from Lynchmere to Mayfield Colliery was opened. The heavy mineral trains demanded the provision of special locomotive power to haul them up the steep bank to the W&EBR main line, but the expenditure turned out to be well worthwhile.

Operated on practical lines with an eye to development of freight, mineral and passenger traffic, the Mayfield Light Railway succeeded where so many other similar ventures failed, and as we shall see later in this history, it was this light railway which rescued the main line from the disastrous position into which it fell in the prewar period.

To be continued



The Causey Arch —the world's first great railway arch. [by courtesy Whickham Urban District Council

FUNDAMENTALS

—railway track and civil engineering

THE railway is probably the best load-carrying machine ever devised. The rails spread the load transversely by the sleepers and it is then distributed by the ballast. Before the days of Macadam and the revival of scientific road construction (an art lost to the world since Roman times) these properties of the railway were of great importance and they account both for its invention and re-invention over the centuries and also for its importance after 1600 in developing coal and other mineral resources where heavy and concentrated loads had to be shifted, whether manually or by equine power.

Not until the modern days of the compact internal combustion engined prime mover and the pneumatic tyre (a splendid load spreader and transmitter of tractive effort) did the railway have a rival and where very high speeds and heavy loadings are concerned it can still show its superiority over the road. It provides the perfect medium for automation of operation, having automated steering from the days of its origin when a flanged wheel was first guided by a rail.

It is sometimes forgotten how far back those days must be. Lee, in *Evolution of Railways,* put the mining tramway back into the twelfth century in Europe and at the beginning of the seventeenth here. By the eighteenth century long hauls for coal from inland collieries and the need to keep gradients modest so that horses could control the full loads going down to the waterside staithes and haul the empties in the opposite direction had produced considerable civil engineering works and even a waggonway tunnel under the Tyne.

Also in the North East Coast area was the Tanfield Wagonway which was built circa 1712 to serve a number of coal workings. Embankments 100ft high on this were looked on with some wonder, both for sheer size and for their cost. In connection with it there was built the Causey Arch in 1727, to carry a double track 4ft gauge wooden waggonway, by a County Durham master mason named Ralph Wood. At various times the arch has been obscured by tree growth, and we are therefore indebted to Whickham Urban District Council for the loan of a block which shows it reasonably clear. The gorge it crosses is considerable—the span is 103ft and the waggonway crossed the gorge high above the floor—the spring of the arch is 35ft alone and the road bed almost 10ft thick.

It was this sort of civil engineering exercise that trained designers and craftsmen for the tasks they had to face in the latter part of the 18th century in producing the vast works of aqueducts, locks, tunnels, cuttings and embankments demanded by the canal era, which in turn produced new breeds of civil engineers and navvies (or navigators) ready for the demands of the 19th century's public railway system.

You write to us

SIR,

In reply to your request for information on the old locomotive in the photograph on page 33 of the Summer 1968 TRAINS ILLUSTRATED, here, thanks to a friend, is all that is known at present.

The locomotive was owned by the Seaton Burn Coal Company, which named it *Comet*. It had come to Seaton Burn second-hand, via Coulthard of Gateshead-on-Tyne, who were the predecessors of Black, Hawthorn.

The *Comet* was probably of Hackworth build, possibly being rebuilt by Coulthard's before purchase by Seaton Burn. It was eventually scrapped between 1900 and 1902.

My own opinion is that the *Comet* was built by Hackworth; the general layout of the cylinders, etc, indicates this. Also the suggestion of a rebuild by Coulthard's appears to be correct, even though it must have been drastic, as the chassis seems to have been turned end-for-end. The wheels also are similar to those used by Black Hawthorn, who could have inherited the patterns from Coulthard's.

K. Robinson,
27 Lavender Gardens,
West Jesmond,
Newcastle-upon-Tyne, NE2 3DD.

SIR,

With reference to your enquiry on page 33 of the Summer number of TRAINS ILLUSTRATED, may I offer the following comments. If the locomotive was built before 1830 (which seems unlikely unless it has sustained a subsequent extensive rebuild) it would probably not have been built by Timothy Hackworth as his early types had vertical cylinders, and a return-flue boiler with the chimney and firedoor at the same end, not to mention spherical coupling rod pins. Indeed, his *Sans Pareil*, built in 1829 for the Rainhill Trials, possessed these features. The locomotive you illustrate is probably an England of the late '40s or early '50s.

Nigel S. Forster,
70 Station Road,
Hatton,
Warwick.

SIR,

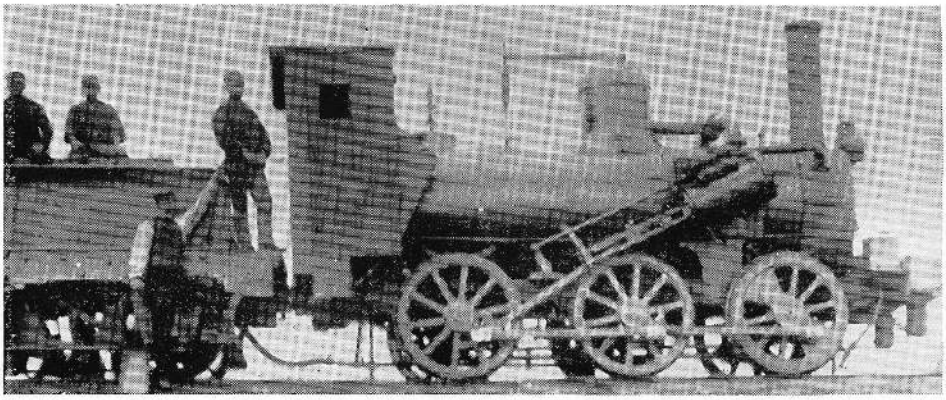
Regarding the photograph of the old locomotive which appears on page 33 of the Summer 1968 issue of TRAINS ILLUSTRATED, this was *Comet*, which worked the coal traffic between Seaton Burn and Dinnington collieries down to the staithes near Howden when John Bowes and Partners owned these and the colliery at Killingworth.

Comet is reputed to have been built by John Coulthard at the Quarry Field Works, Gateshead, in 1849, although it is most likely that it is a reconstruction of an early engine. I was told by Mr. Charlton, foreman fitter at Killingworth, that she was still in existence when he started working in 1898 but was scrapped shortly after that.

I have a photograph which shows her with a timber cab carrying a small oval plate. The boiler is identical with that in your picture and has a cylindrical firebox. The only brakes are on the tender.

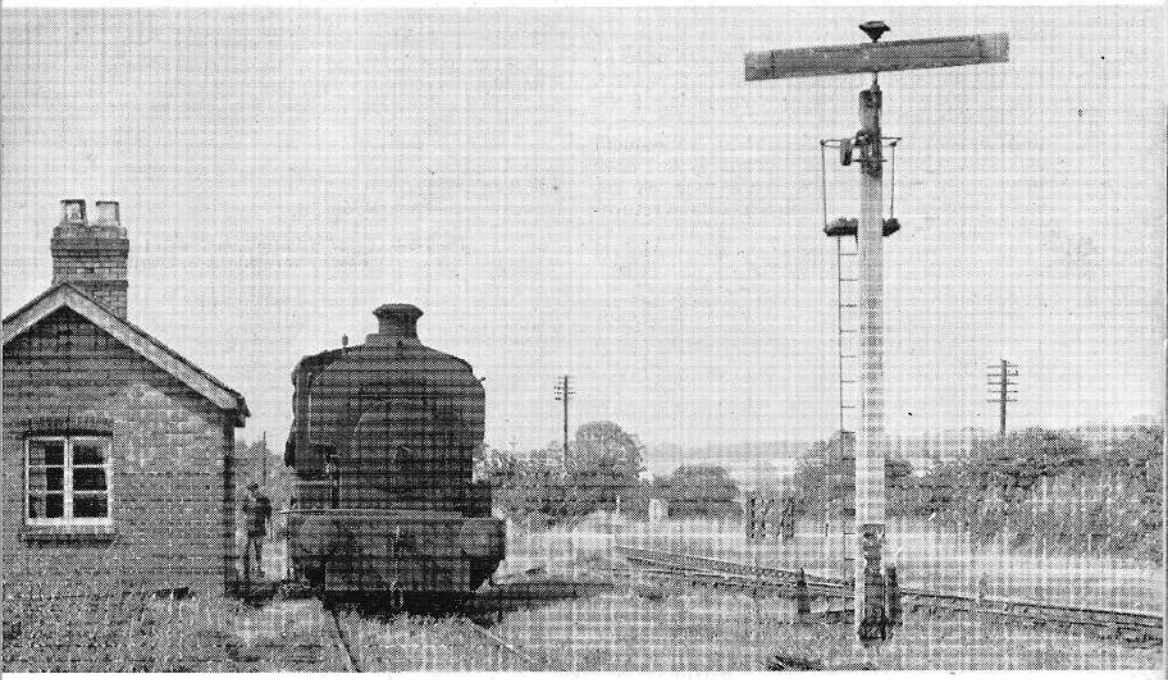
L. G. Charlton,
143 Rothbury Terrace,
Newcastle-on-Tyne, NE6 5DB.

The 0–6–0 COMET of Seaton Burn Coal Co Ltd at Howden on Tyne. [L. G. Charlton



ABOVE: Class 5 4–6–0 banking a mineral train from Eastwood Junction to Copsy Pit summit on the East Lancs line in August 1967. [J. P. Feather

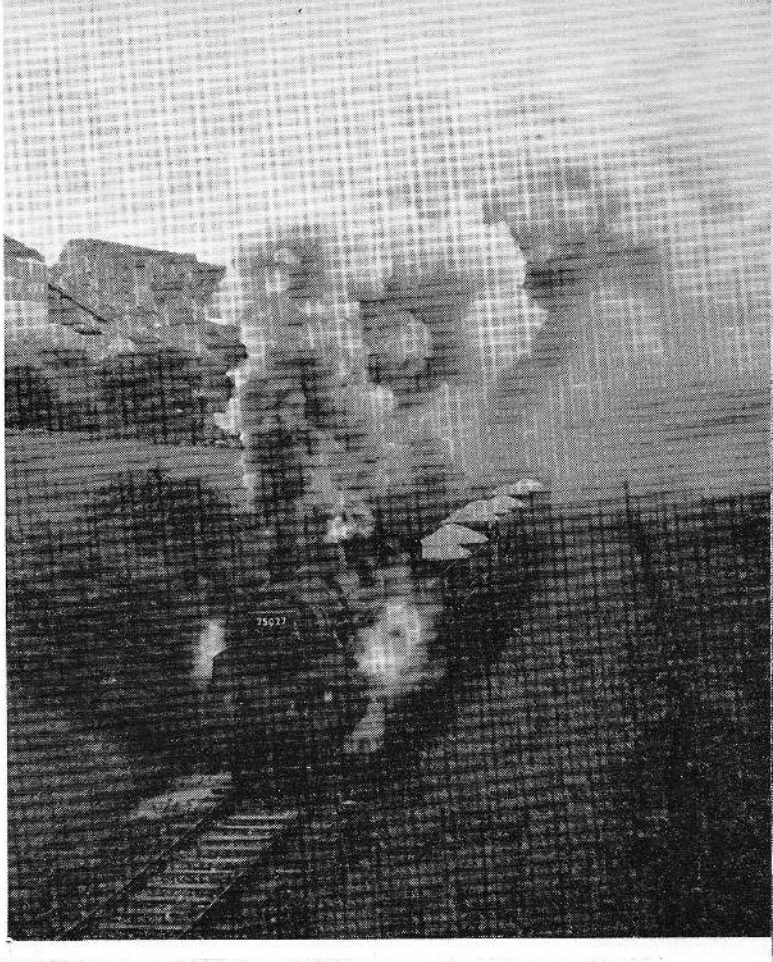
BELOW: An Avonside 0–6–0ST, STAMFORD, stands in 1967 at Pilton Quarries beside an old Midland crossbar signal which turns parallel to the track when off. [P. H. Groom



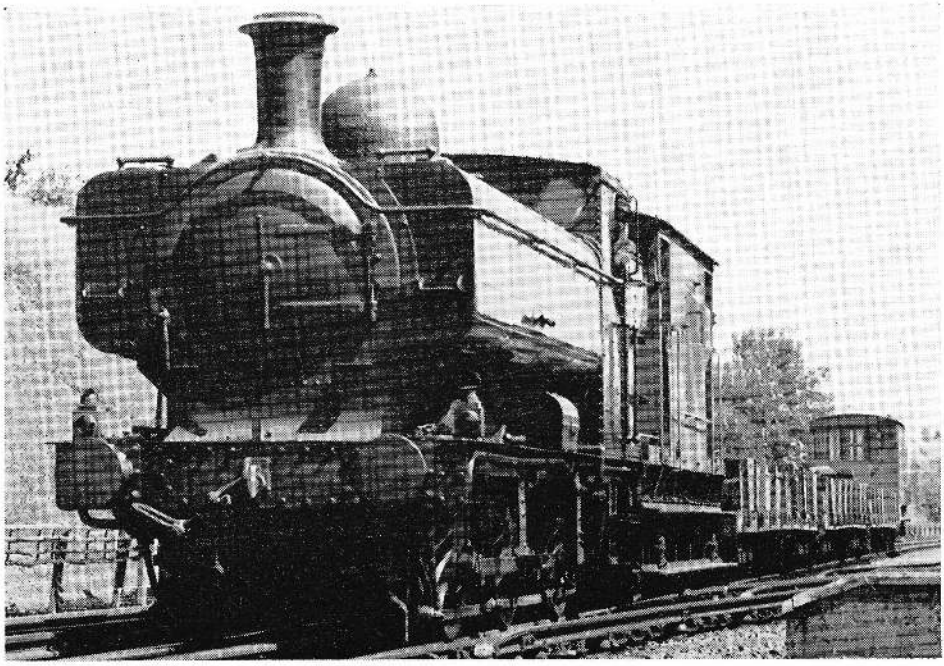
AUTUMN 1968

UPPER: BR Standard 4–6–0 75027 leaves Spencers Lime Sidings last June with a mineral train on the Grassington branch. [J. R. Sugden

LOWER: A London Transport rubbish train on the Watford branch with ex-GW pannier 0–6–0 tank L98. [P. H. Groom



mineral traffic



More vanished London services

By
CHARLES KLAPPER MInstT

Symbolic of the vanished past is this broken viaduct of the London Chatham and Dover Greenwich Park branch (1871-1916), cut into by modern flats where it crosses the River Ravensbourne.
*[C. F. Klapper

SOME of the most extraordinary old-time London train services, now long vanished from the scene, have been in connection with the West London and West London Extension Railways. The former dated back to the earliest days of railways, but after some abortive experiments in the 1840s with passenger trains its joint owners, the Great Western and London & North Western companies, became convinced that its role was only as a domestic coal carrier. For nearly a score of years it slept and then it was transformed by the incorporation of the West London Extension Railway in 1859; this was joint between four companies—the GW and LNW plus the London, Brighton & South Coast and the London & South Western. It is typical that whereas the latter pair built Clapham Junction as an interchange point in 1863 as soon as the WLER was complete, the LNW waited to build Willesden Junction until 1866 and the Great Western never got round to an interchange point for passengers.

The result in 1863 was a bizarre and sparse LNW train service from Harrow (that company's first station out of Euston) to Kensington (now Olympia), the only station then open on the West London. From Euston nine trains reversed at the junction near Willesden and ran via Clapham Junction to Crystal Palace and East Croydon. Brighton coaches worked into Euston on some of these. The workings gradually faded away but were an unconscionable time adying. Even as late as 1917 the service which began in 1869 from Broad Street via Hampstead Heath, and Kensington to Victoria was still persisting, as were some East Croydon passenger workings; these survived as parcels trains until nationalisation.

When the South Eastern was projected from London Bridge to Charing Cross a connection was made into Waterloo and the South Western in 1866 inspired a train service from Euston to Willesden, Kensington, Waterloo and London Bridge. The following year it operated into Cannon Street for a time before it was first cut down in numbers, then curtailed and finally abandoned. Even a horse cab in a thick fog could compete with such a circumlocutory course.

These North Western services on the West London were given a strong dose of corpse-reviver when the Metropolitan District was connected to the West London just south of Kensington (which now acquired the distinguishing tag of "Addison Road" to avoid confusion with the Underground's High Street). The new service became known as the Outer Circle and from February 1, 1872, was operated by the LNWR from Broad Street via Willesden and Kensington to Earls Court and Mansion House at half-hourly intervals. The trains, which had Webb 2-4-2 tanks and at one time a compound 2-2-2-2 tank for motive power, were hauled east of Earls Court by District electric locomotives after electrification of the south side of the Circle in 1905, but on December 31, 1908, the service was cut back to Earls Court. In May 1914 the LNWR electrification came into operation (at first with hired District trains)

A London and South Western train from Wimbledon to Ludgate Hill via Merton Abbey and Tulse Hill; the M7 0-4-4 tank is rolling into Merton Park on March 2, 1929, the penultimate day of operation. [H. C. Casserley

and the remnant of the Outer Circle became a 15min service from Willesden Junction to Earls Court. In this form it ceased through war damage on October 3, 1940.

How many people remember that there was also a Middle Circle service? After the opening of the Metropolitan & Great Western Joint Hammersmith & City Line, with its spur from Latimer Road to the West London at Uxbridge Road, a broad-gauge service was operated by the GWR from Farringdon Street, to Kensington Addison Road, beginning on April 1, 1865. It went on to Moorgate on December 23, 1865 and from August 1, 1872, was extended from Addison Road over the District to the Mansion House, now, of course, with GWR 4ft 8½in gauge locomotives and coaches. From July 1, 1900, it was cut back to Earls Court; from February 1, 1905, it ran into a bay at Addison Road and was provided by Hammersmith & City electric stock from Aldgate. Then in 1910 it became Edgware Road and Addison Road and a three-coach shuttle persisted until a bomb damaged the junction spur at Latimer Road on October 20, 1940—a few days after the LMS electrics (as they had become) ceased to run.

The best Great Western efforts on the West London and WLE railways were devoted to reaching Victoria. The honeyed tones of London, Chatham & Dover blandishments had caused the GW to spend a good deal of hard cash on paying for half of the Chatham company's part of Victoria terminal — at enhanced prices, too, because the 7ft gauge was insisted upon. This must have added several thousands to the cost of getting the WLE to a junction with the Chatham at Longhedge, as there was a sizeable bridge over the Thames at Chelsea (and, of course, another on the Victoria Station & Pimlico line at Grosvenor Road). There were seven trains from Victoria to Southall from April, 1863, and much uncertainty as to whether main-line connections, if any, should be made at Ealing or Southall. Through portions to Windsor and Reading were also tried. In general the public found a cab to Paddington more reliable.

Nevertheless Victoria-Southall workings endured for many years and even increased, with a regular Uxbridge working. Then after 1910 the new Birmingham line was tempting and in 1911 there were trains from Victoria to Birmingham and one at 20.15 for Wolverhampton, but to no avail. Through coaches from the South Eastern resorts met no better fate; railmotors from Victoria or Clapham Junction to Thames-side resorts on Sundays were also ignored by a public that seemed to think that to step into a Great Western train without crossing the Lawn at Paddington was a rash and ill-omened act. The 1914 war and Southern electrification put an end to these essays in enticing South Londoners to the Thames Valley and Burnham Beeches.

The Great Western used the Hammersmith & City as a springboard to reach that Mecca of railway services, Richmond. Not content with the Windsor lines approach, the London & South Western Railway had built a line from Kensington on the WELR to Richmond. It started on a northabout curve to Shepherds Bush; now heading south, it flirted with the Hammersmith & City at Hammersmith, turned west through Turnham Green and then veered south to Gunnersbury, Kew Gardens and Richmond. By a connection to the North & South Western Junction this line made a new short route to Richmond for North London trains, which had previously reached their haven via Kew Bridge and a long-vanished curve at Barnes. So, though roundabout in itself, the LSWR line made a short cut for the NL trains when it was opened on January 1, 1869. The Great Western service began from Bishops Road to Richmond in June 1870, lasted two summers and vanished in October 1871; it used a connection north of Hammersmith on the H & C to get into the LSWR station at The Grove.

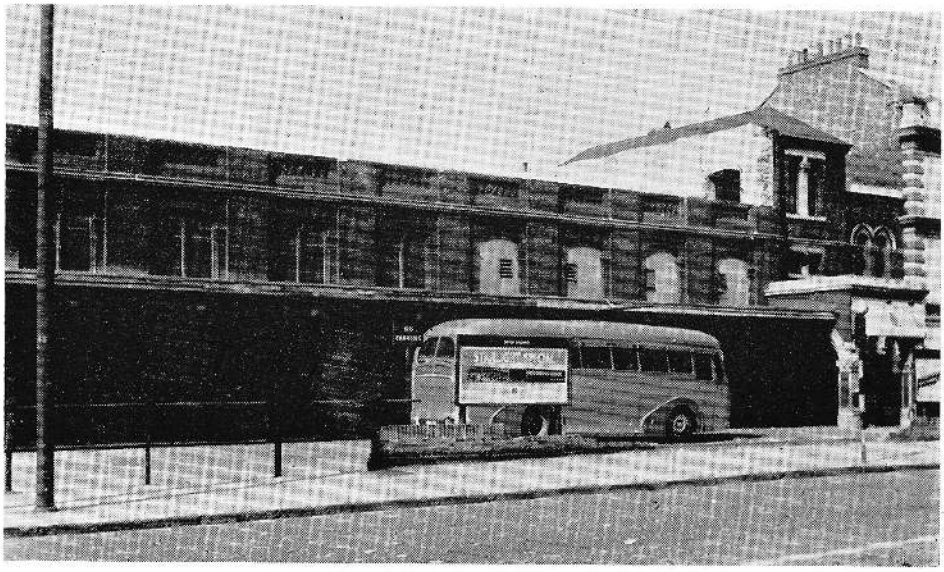
Richmond was a magnet to the Metropolitan District Railway; it tried and failed to get from West Brompton through Barnes; at Hammersmith Broadway its trains were about 40ft below the LSWR tracks and less than a quarter-mile distant. How to bridge the gap and build half a mile of the necessary costly incline? The Midland proved to be the fairy godfather; its money was safeguarded in special Hammersmith Junction shares; the District got access to the LSWR and ran to Turnham Green and Richmond from June 1, 1877, with a service from Mansion House. Later, of course, it reached Ealing from Turnham Green over its own tracks and then for a time ran riot with through trains to Windsor. The Midland's quid pro quo progress was a pair of coal depots at West Kensington (just sold for housing by BR at a fabulous price) and High Street.

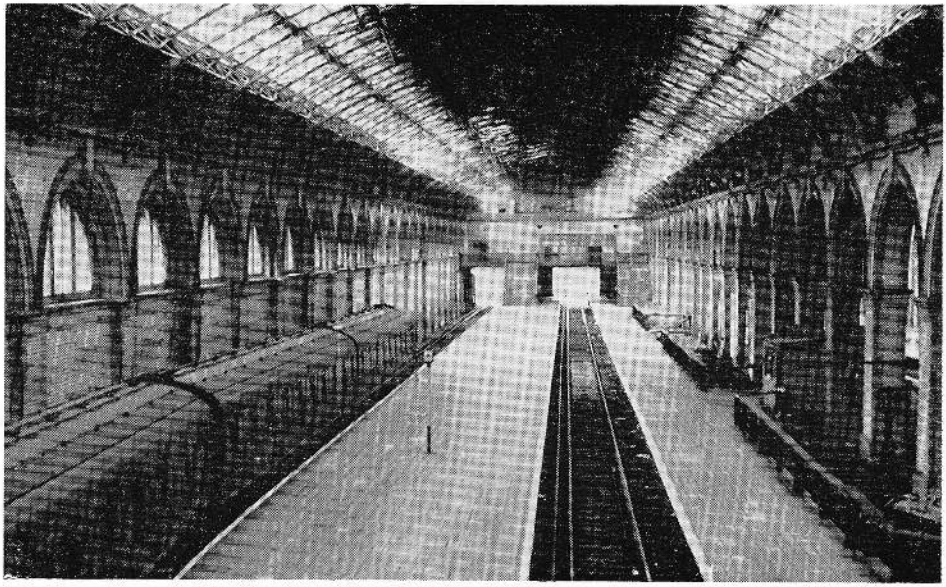
The District having attained Richmond nothing would suit the Metropolitan but access to the same goal and so negotiations ensued and on October 1, 1877, Metropolitan trains ran from Moorgate via the H & C line, The Grove and the LSWR through Turnham Green to Richmond. In 1894 the GW took over the working and operated from Aldgate; in 1905, on electrification, the steam shuttle from Richmond was curtailed at Ladbroke Grove. December 31, 1910, saw the last of these trans-suburban connections, but when Richmond was rebuilt by the Southern just before the war GW TRAIN TO ALDGATE was duly painted on a platform destination board. By that time the projection of Piccadilly trains over the District in 1932 and rearrangement of tracks had actually broken any possible physical contact.

The LSWR ran circuitous services over its Shepherds Bush and Richmond line via

Willesden Junction High Level Station in the fifties with an ex LNWR train built for the opening of the North London electric services in 1916. The golden age of Willesden as an interchange point has now receded with the abolition of platforms on the main line and the 28 year old suspension of the West London service to Earls Court. [A. A. Jackson

Bow Station on the North London Railway in 1957. The passenger trains ceased in 1944 and the North London Company's concert hall and welfare centre has been pulled down. The coach in the picture was used by a Railway and Canal Historical Society party. [C. F. Klapper

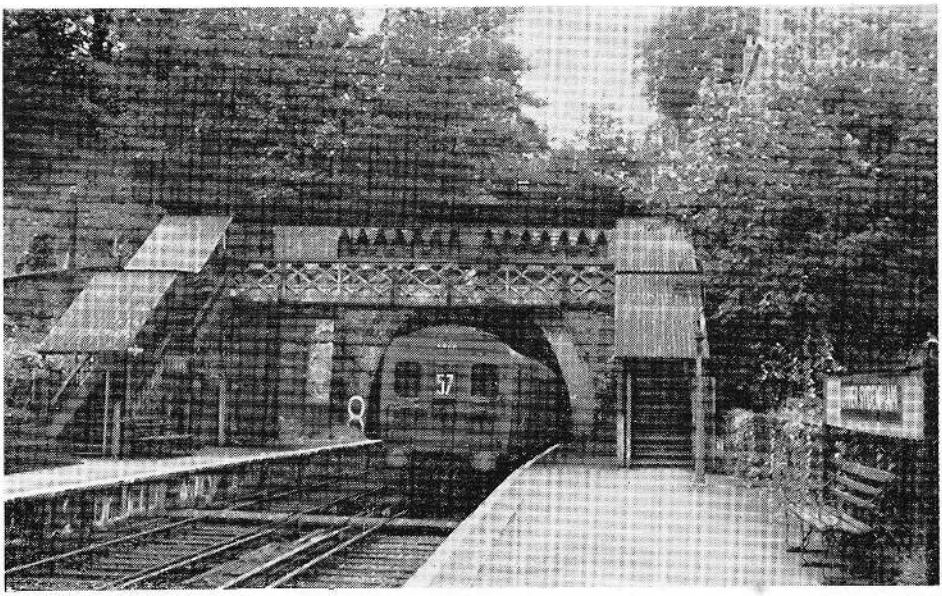




Addison Road from Waterloo or, still more meandering, from Ludgate Hill via Loughborough and Latchmere — nearly 15 miles. After the electrification of District services the line from Ravenscourt Park to Turnham Green was quadrupled so as to carry the traffic; the work was completed about 1911 but the LSWR trains, which had become less frequent, ceased altogether on June 5, 1916. After that there was some troop movement but the tracks remained derelict, despite schemes for operating Central London Line trains to Richmond that way, for 16 years. One more spasmodic service to the Turnham Green area deserves mention and that was initiated by one of the interested parties, the Midland, to give a passenger service on its Hendon-Dudden Hill-Acton Wells line. The inevitable service to Richmond (from Moorgate Street) began on August 3, 1875 and was changed on February 1, 1876, to a Child's Hill-Harrow Road (later Stonebridge Park) shuttle. On May 1, 1878, Richmond got the better of the Midland directors and the service was extended to Turnham Green to make Richmond connections. This failed to secure the desired patronage and lasted only two summer seasons; whatever ideas there may have been of getting a return on its own passenger trains from the Hammersmith Junction investment, the Midland refrained from an outer London tour from Moorgate to Earls Court, but over the ten years from January 1, 1894, ran a Child's Hill to Gunnersbury connecting service. Dudden Hill and Stonebridge Park stations finally closed their doors on October 1, 1904.

The London & South Western had put £310,000 into the London, Chatham & Dover's route into Ludgate Hill and Holborn Viaduct and besides the Richmond trains mentioned had operated from April 3, 1866, trains from Kingston via Clapham Junction, Longhedge and Loughborough to Ludgate Hill. On January 1, 1869, this was diverted to run from Richmond via Shepherds Bush and a new spur from Tulse Hill to Herne Hill was opened. Over this a service began to Ludgate Hill from Wimbledon, via either way of the loop on the joint LBSC and LSW line, i.e., Haydons Road or Merton Abbey. The latter did not survive the Southern electrification and was closed on March 3, 1929. The Holborn-Wimbledon electric service today uses the north side of the loop via Haydons Road to go on to the Wimbledon and Sutton Line. The steam service to Ludgate Hill had previously been in abeyance from January 1, 1917, until the Southern was pressed to reopen it from August 27, 1923.

The same LC & D line via Loughborough gave access over the Brighton's South London Line at Cow Lane Junction to the Crystal Palace & South London Junction Railway, opened on August 1, 1865. An elaborate High Level station at Crystal Palace, that would have served well as a railway museum building had it been preserved, was linked by four miles of 1 in 78 down to Nunhead and the South London Line viaduct. Because the stations were all located in picturesque but sparsely inhabited residential areas business was thin when there were no attractions at the Crystal Palace. So the wars took their toll with closures to economise staff from January 1, 1917 to March 1, 1919, and again from May 22, 1944, to March 4, 1946. It is difficult to see why the branch was again brought into service, except that despite its avoidance of

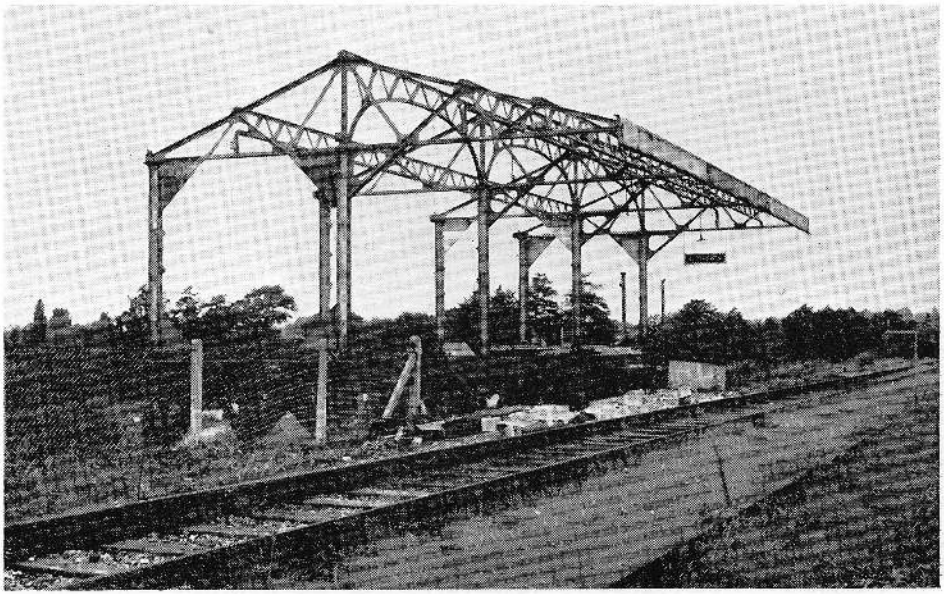


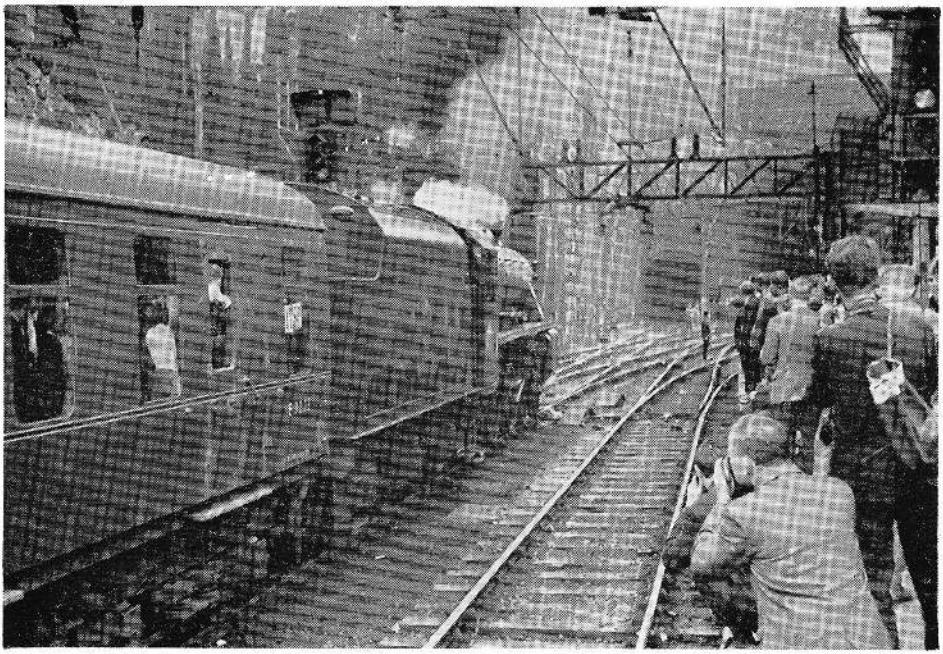
traffic centres it was highly thought of in some quarters as a possible outlet for the south end of the Bakerloo tube. Just before the 1944 closure I had some cab trips over the line and its rural air was remarkable—tree embowered cuttings led to the tunnels and pleasing gardens lay either side of the embankments. Despite housing developments around Upper Sydenham station it was closed finally on September 20, 1954, and the residue of the traffic was catered for by a London Transport bus at 20min intervals.

OPPOSITE: Palatial LC&D Crystal Palace High Level closed on September 20, 1954, was discussed as an LPTB bus station and then demolished. [H. C. Casserley

ABOVE: Blackfriars-Crystal Palace train emerges from Crescent Wood Tunnel into Upper Sydenham in July, 1954. [H. C. Casserley

BELOW: Uxbridge High Street, on the abortive GWR line round Uxbridge, after the demolition gang started in 1955. [A. Hustwitt





STEAM SWANSONG

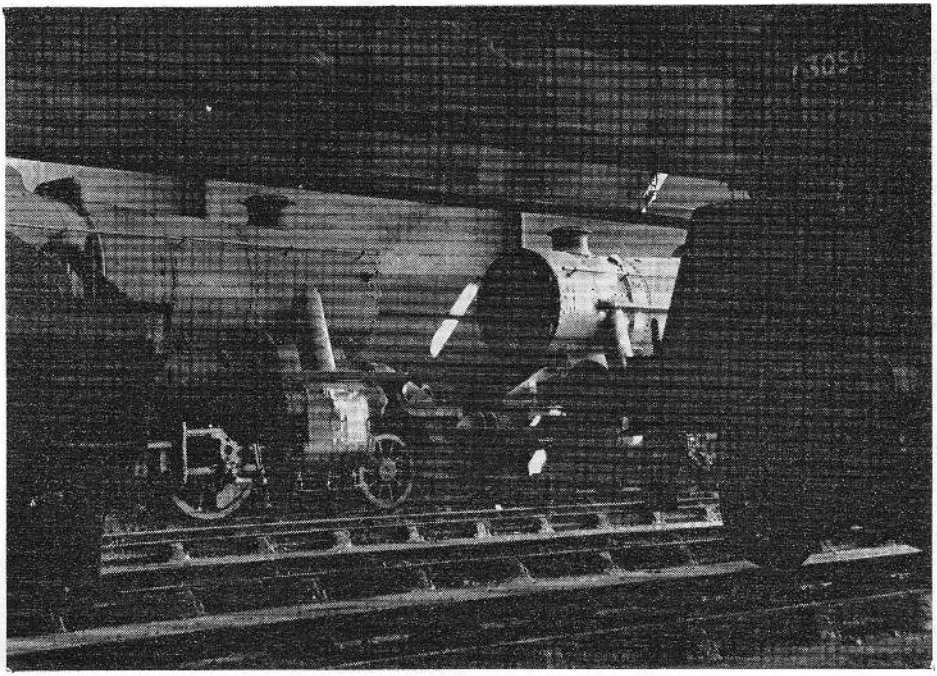
Last-of-steam excursion by BR from Liverpool to Carlisle and back over the Midland route on August 11, 1968

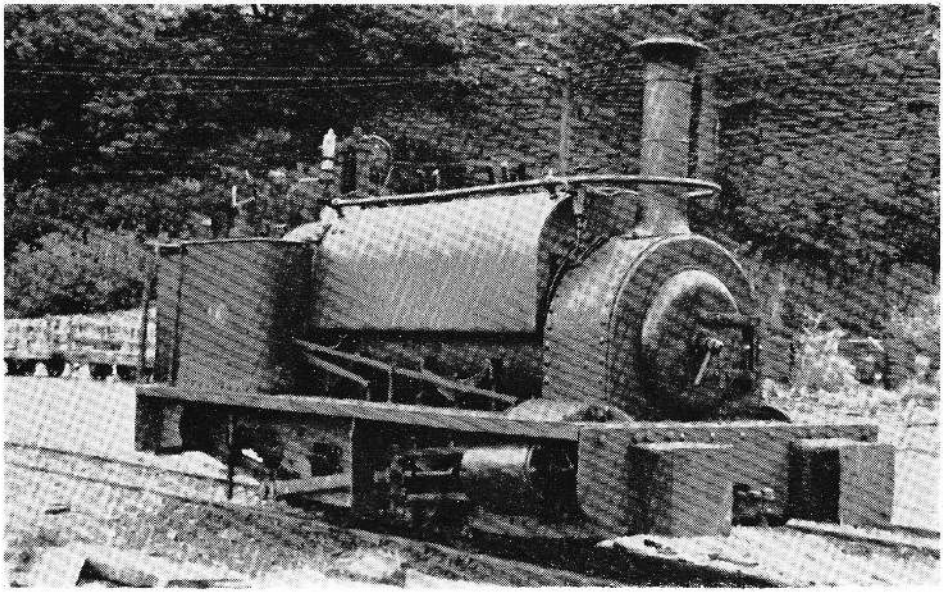
TOP LEFT: Class 5 4–6–0 45110 awaits departure from Liverpool Lime Street with train 1T57. [I. S. Carr.

LOWER LEFT: Two Class 5s, 44871 and 44781, near the Ais Gill top on the return working. [J. C. K. Allen

ABOVE: Now with Class 7 4–6–2 70013 OLIVER CROMWELL at Ais Gill on the northbound train. [P. D. Oliver

BELOW: In a quiet corner of Patricroft shed two 2–8–0's, chimney to chimney, stand silent, their services dispensed with. [John A. M. Vaughan

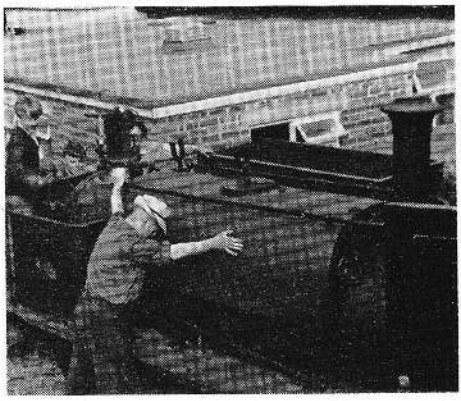


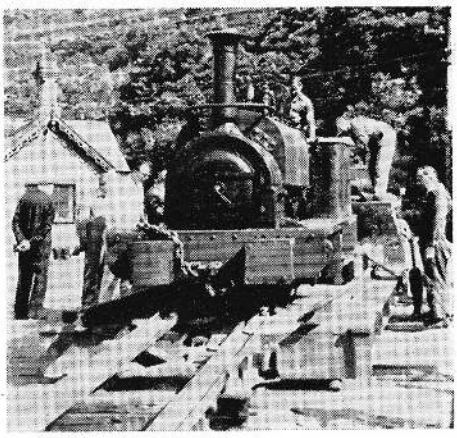


ROUGH PUP AT TOWYN

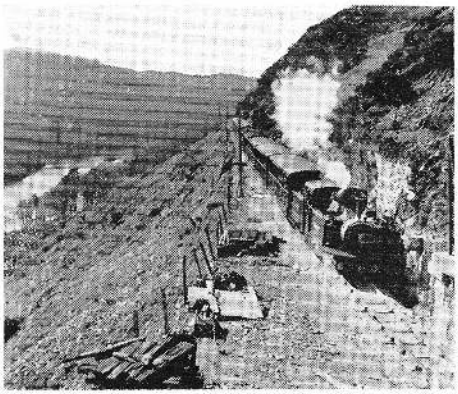
Latest arrival in the display of narrow gauge steam locomotives at the Narrow Gauge Railway Museum, Towyn, Merionethshire, a Rough Pup, a 1ft 10¾in gauge 0-4-0 saddle tank built by Hunslet (No. 541) in 1891 for the Dinorwic Slate Quarries. This locomotive is typical of many built for slate quarry railways and spent the whole of its working life at the Llanberis quarry, after which it was brought down from the galleries on the mountainside, nearly 1,500ft up, to the workshops at the bottom level during 1966. It has since been renovated there and has been presented to the Narrow Gauge Railway Museum by the quarry company.

Weight in working order is 6 tons 14 cwt, the cylinders 7in by 10in, wheels 1ft 8in diameter and the tractive effort, 2,940 lb. The length overall is 13ft 9in, the width 5ft 4in, and the height to the top of chimney 7ft 3in.





ABOVE: ROUGH PUP about to leave Dinorwic.
RIGHT, upper: Manhandling into the Towyn Museum
RIGHT, lower: Loading for transport.

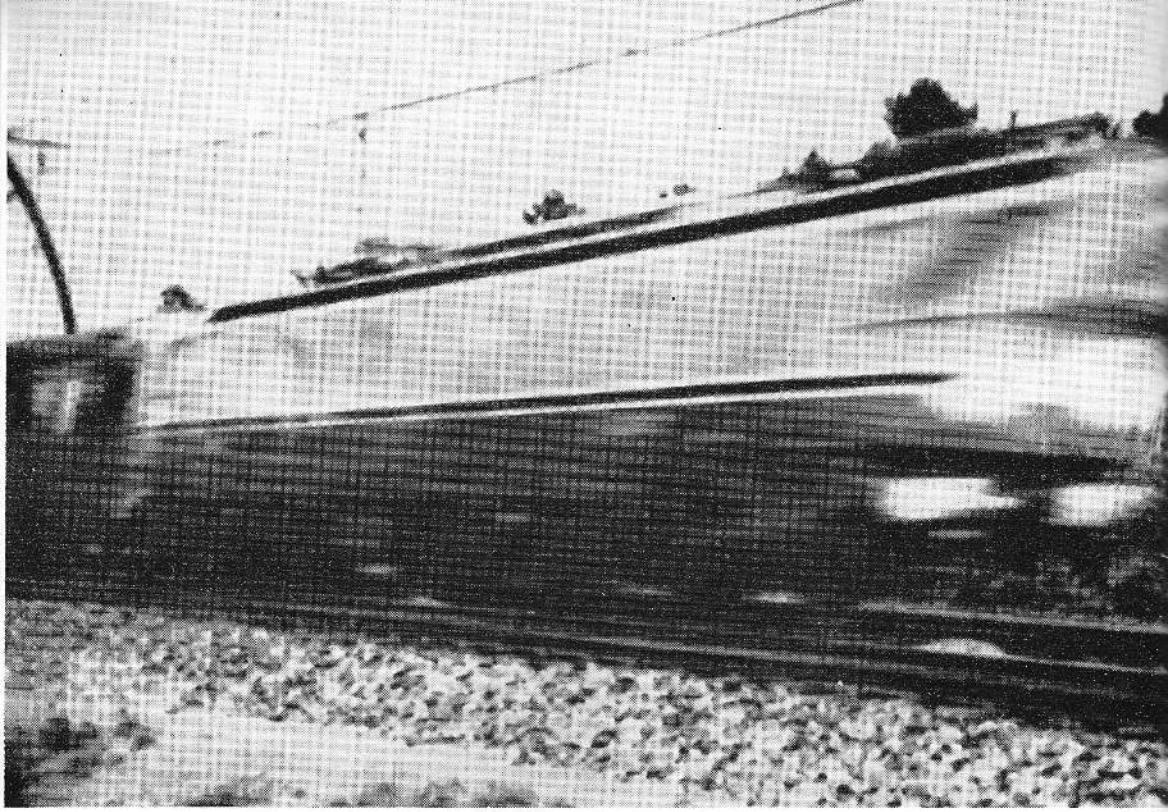


FESTINIOG TO DDUALLT

After 29 years passenger services were restored as far as Dduallt on the Festiniog Railway on April 6, 1968, following an inspection by Colonel J. R. H. Robinson of the Ministry of Transport. Through the foot-and-mouth epidemic there were certain difficulties in completing the work, and until May 20 a pilot engine had to be employed as there was no run-round loop. Mr. W. G. Thorpe, vice-chairman, BRB, had intended to open the new line, but in the event the ceremony was performed by Sir Leonard Cooke, member of the London Midland board.

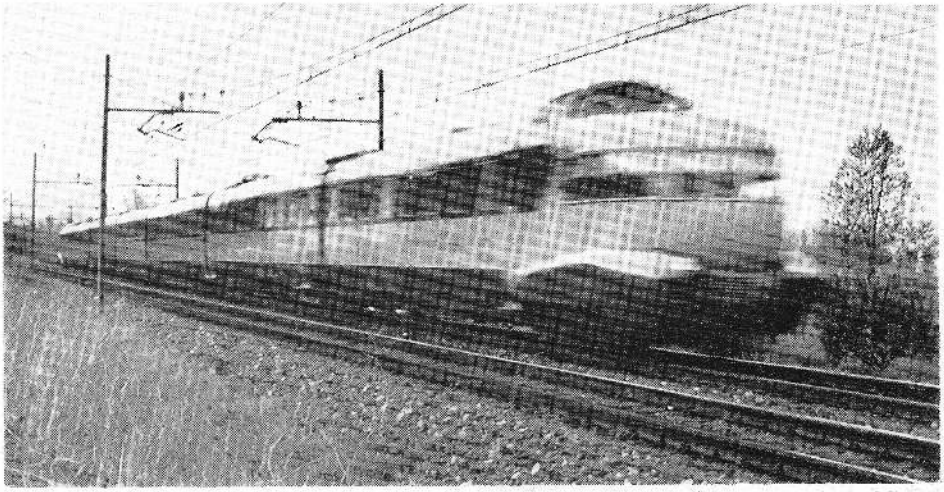
Another Festiniog change in 1968 is brought about by the retirement of Bessie Jones, stationmistress at Tan-y-bwlch. Instead Miss Eva Bolton acts as hostess at Portmadoc and makes train announcements in Welsh.

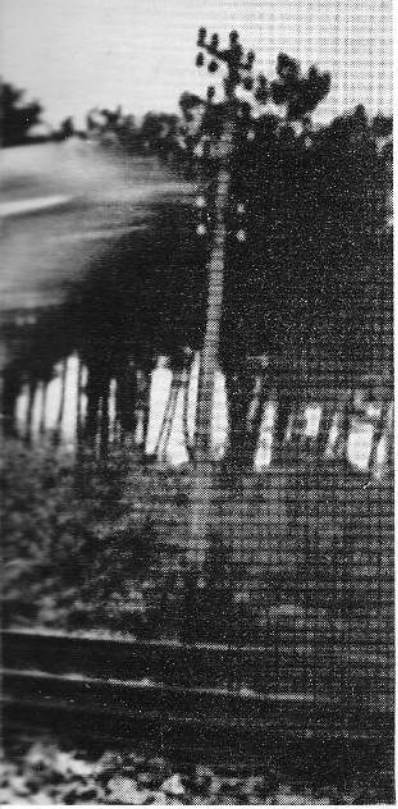
ABOVE: EARL OF MERIONETH heads first train to Dduallt.
LEFT, upper: Afternoon up train approaches Garnedd Tunnel
LEFT, lower: Miss Eva Bolton with Mr W. B. Broadbent, a director of the Festiniog Railway Company, and chairman of the Festiniog Railway Society.

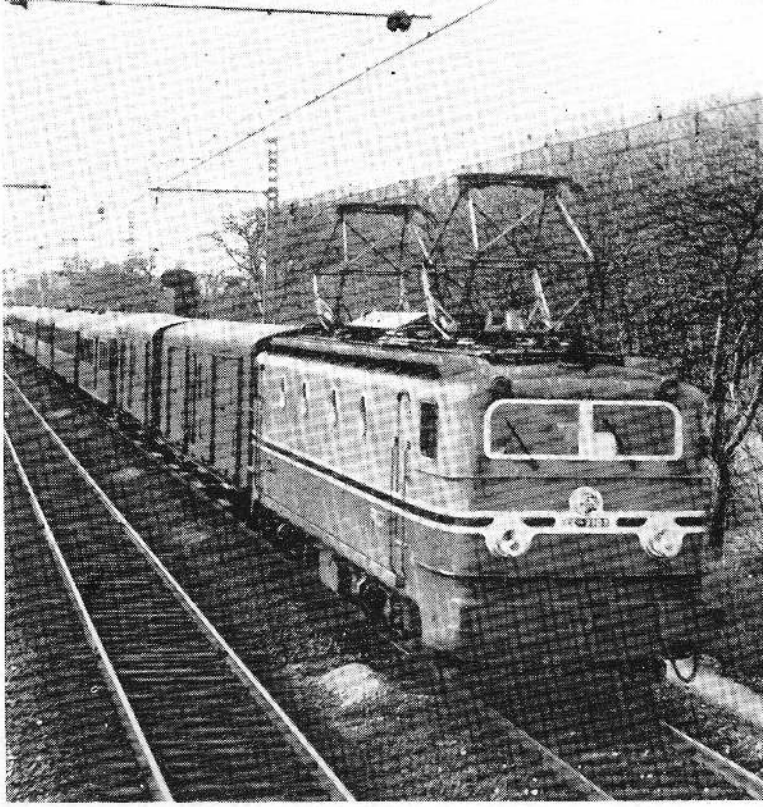


SPEED....

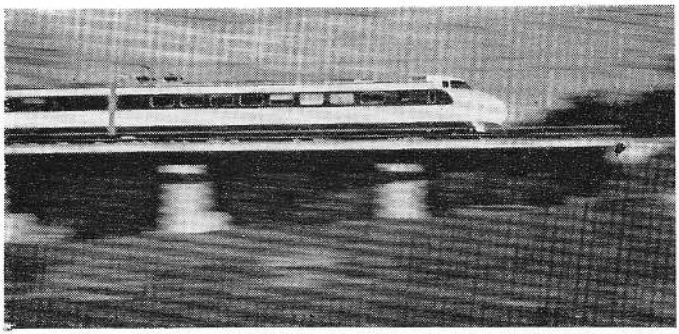
Simulated in pictures

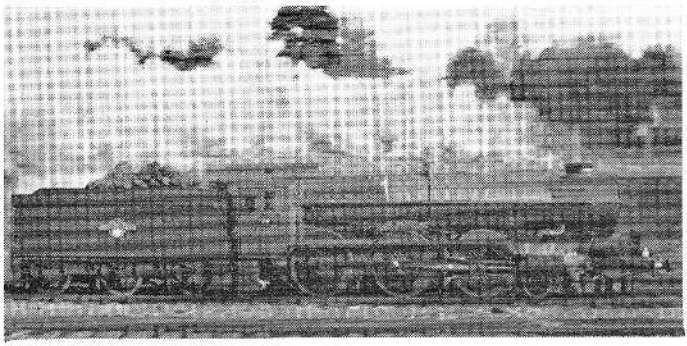






LEFT: The French locomotive CC7107 running at 205mph, the world record, between Lamothe and Morcenx on March 28, 1955, and, above, a conventional view on a more modestly timed express [SNCF





LEFT: The Italian Breda-built ETR 300 train at a mere 90 mph. [FS

RIGHT, upper: A New Tokaido Line train crossing Japan at 130 mph. [JNR

RIGHT, lower: A WR King, KING HENRY VII, with streamlined cab, near Bentley Heath, at high speed on November 17, 1959 [M. Mensing

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[From a painting by Victor Welch